VICTOR

OUTPUT DC | MAX OUTPUT 5/4 AMPS | INPUT POWER 1 PHASE | VOLTAGE 115V | VOLTAGE 220V

N7500

Arcair-Matic® Gouging System

Operating Manual

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VictorTechnologies.com/Arcair

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WARNINGS

Read and understand this entire Manual and your employer's safety practices before installing, operating, or servicing the equipment.

While the information contained in this Manual represents the Manufacturer's best judgement, the Manufacturer assumes no liability for its use.

Arcair-Matic® N7500 Gouging System
Operating Manual
Operating Manual Guide Number: 89250890

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Revision Date: Feb. 19, 2014

Patent Pending

Record the following information for Warranty purposes:
Where Purchased:_____
Purchase Date: _____

	Part Number	Serial Number
Control Box:	_____	_____
Pendant:	_____	_____
Torch Head:	_____	_____

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SECTION 1: GENERAL INFORMATION

1.01 Notes, Cautions and Warnings

WARNING

PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH. KEEP CHILDREN AWAY. PACEMAKER WEARERS KEEP AWAY UNTIL CONSULTING YOUR DOCTOR. DO NOT LOSE THESE INSTRUCTIONS. READ OPERATING/INSTRUCTION MANUAL BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT.

Welding products and welding processes can cause serious injury or death, or damage to other equipment or property, if the operator does not strictly observe all safety rules and take precautionary actions.

Safe practices have developed from past experience in the use of welding and cutting. These practices must be learned through study and training before using this equipment. Some of these practices apply to equipment connected to power lines; other practices apply to engine driven equipment. Anyone not having extensive training in welding and cutting practices should not attempt to weld.

Safe practices are outlined in the American National Standard Z49.1 entitled: SAFETY IN WELDING AND CUTTING. This publication and other guides to what you should learn before operating this equipment are listed at the end of these safety precautions. **HAVE ALL INSTALLATION, OPERATION, MAINTENANCE, AND REPAIR WORK PERFORMED ONLY BY QUALIFIED PEOPLE.**

WARNING

SERIOUS INJURY OR DEATH *may result if welding and cutting equipment is not properly installed, used, and maintained. Misuse of this equipment and other unsafe practices can be hazardous. The operator, supervisor, and helper must read and understand the following safety warnings and instructions before installing or using any welding or cutting equipment, and be aware of the dangers of the welding or cutting process. Training and proper supervision are important for a safe work place. Keep these instructions for future use. Additional recommended safety and operating information is referenced in each section.*

1.02 Arc Welding Hazards

WARNING

ELECTRIC SHOCK can kill.

Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semi-automatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

1. Do not touch live electrical parts.
2. Wear dry, hole-free insulating gloves and body protection.
3. Insulate yourself from work and ground using dry insulating mats or covers.
4. Disconnect input power or stop engine before installing or servicing this equipment. Lock input power disconnect switch open, or remove line fuses so power cannot be turned on accidentally.
5. Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.
6. Turn off all equipment when not in use. Disconnect power to equipment if it will be left unattended or out of service.
7. Use fully insulated electrode holders. Never dip holder in water to cool it or lay it down on the ground or the work surface. Do not touch holders connected to two welding machines at the same time or touch other people with the holder or electrode.

8. Do not use worn, damaged, undersized, or poorly spliced cables.
9. Do not wrap cables around your body.
10. Ground the workpiece to a good electrical (earth) ground.
11. Do not touch electrode while in contact with the work (ground) circuit.
12. Use only well-maintained equipment. Repair or replace damaged parts at once.
13. In confined spaces or damp locations, do not use a welder with AC output unless it is equipped with a voltage reducer. Use equipment with DC output.
14. Wear a safety harness to prevent falling if working above floor level.
15. Keep all panels and covers securely in place.

WARNING

ARC RAYS can burn eyes and skin; NOISE can damage hearing. Arc rays from the welding process produce intense heat and strong ultraviolet rays that can burn eyes and skin. Noise from some processes can damage hearing.

1. Wear a welding helmet fitted with a proper shade of filter (see ANSI Z49.1 listed in Safety Standards) to protect your face and eyes when welding or watching.
2. Wear approved safety glasses. Side shields recommended.
3. Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
4. Wear protective clothing made from durable, flame-resistant material (wool and leather) and foot protection.
5. Use approved ear plugs or ear muffs if noise level is high.

WARNING

FUMES AND GASES can be hazardous to your health.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

1. Keep your head out of the fumes. Do not breath the fumes.
2. If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
3. If ventilation is poor, use an approved air-supplied respirator.
4. Read the Material Safety Data Sheets (MSDSs) and the manufacturer's instruction for metals, consumables, coatings, and cleaners.
5. Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Shielding gases used for welding can displace air causing injury or death. Be sure the breathing air is safe.
6. Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapors to form highly toxic and irritating gases.
7. Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and if necessary, while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

WARNING

WELDING can cause fire or explosion.

Sparks and spatter fly off from the welding arc. The flying sparks and hot metal, weld spatter, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of electrode or welding wire to metal objects can cause sparks, overheating, or fire.

1. Protect yourself and others from flying sparks and hot metal.
2. Do not weld where flying sparks can strike flammable material.

3. Remove all flammables within 35 ft. (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
4. Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
5. Watch for fire, and keep a fire extinguisher nearby.
6. Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
7. Do not weld on closed containers such as tanks or drums.
8. Connect work cable to the work as close to the welding area as practical to prevent welding current from traveling long, possibly unknown paths and causing electric shock and fire hazards.
9. Do not use welder to thaw frozen pipes.
10. Remove stick electrode from holder or cut off welding wire at contact tip when not in use.

WARNING

FLYING SPARKS AND HOT METAL can cause injury.

Chipping and grinding cause flying metal. As welds cool, they can throw off slag.

1. Wear approved face shield or safety goggles. Side shields recommended.
2. Wear proper body protection to protect skin.

WARNING

MOVING PARTS can cause injury.

Moving parts, such as fans, rotors, and belts can cut fingers and hands and catch loose clothing.

1. Keep all doors, panels, covers, and guards closed and securely in place.
2. Stop engine before installing or connecting unit.
3. Have only qualified people remove guards or covers for maintenance and troubleshooting as necessary.
4. To prevent accidental starting during servicing, disconnect negative (-) battery cable from battery.
5. Keep hands, hair, loose clothing, and tools away from moving parts.
6. Reinstall panels or guards and close doors when servicing is finished and before starting engine.

NOTE

The following is a quotation from the General Conclusions Section of the U.S. Congress, Office of Technology Assessment, Biological Effects of Power Frequency Electric & Magnetic Fields - Background Paper, OTA-BP-E-63 (Washington, DC: U.S. Government Printing Office, May 1989): "...there is now a very large volume of scientific findings based on experiments at the cellular level and from studies with animals and people which clearly establish that low frequency magnetic fields interact with, and produce changes in, biological systems. While most of this work is of very high quality, the results are complex. Current scientific understanding does not yet allow us to interpret the evidence in a single coherent framework. Even more frustrating, it does not yet allow us to draw definite conclusions about questions of possible risk or to offer clear science-based advice on strategies to minimize or avoid potential risks."

To reduce magnetic fields in the workplace, use the following procedures.

1. Keep cables close together by twisting or taping them.
2. Arrange cables to one side and away from the operator.
3. Do not coil or drape cable around the body.
4. Keep welding power source and cables as far away from body as practical.

ABOUT PACEMAKERS:

The above procedures are among those also normally recommended for pacemaker wearers. Consult your doctor for complete information.

1.03 Principal Safety Standard Publications

1. Code of Federal Regulations (OSHA) Section 29, Part 1910.95, 132, 133, 134, 139, 251, 252, 253, 254, and 1000. U.S. Government Printing Office, Washington, DC 20402 http://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=STANDARDS&p_toc_level=1&p_keyvalue=1910
2. ANSI Z49.1 "Safety in Welding and Cutting" http://www.nssn.org/
3. ANSI Z87.1 "Practice for Occupational and Educational Eye and Face Protection" http://www.nssn.org/
4. ANSI Z88.2. "Standard Practice for Respiratory Protection." American National Standards Institute, 1430 Broadway, New York, NY 10018 http://www.nssn.org/
5. AWS F4.1. "Recommended Safe Practices for Welding and Cutting Containers" http://www.aws.org/w/a/technical/index.html
6. AWS C5.3. "Recommended Practices for Air Carbon-Arc Gouging and Cutting." The American Welding Society, 550 NW Lejeune Rd., P.O. Box 351040, Miami, FL 33135 http://www.aws.org/w/a/technical/index.html
7. NFPA 51B. "Fire Prevention in Cutting and Welding Processes." http://www.nfpa.org/aboutthecodes/list_of_codes_and_standards.asp
8. NFPA-7. "National Electrical Code" National Fire Protection Association, Battery Park, Quincy, MA 02269 http://www.nfpa.org/aboutthecodes/list_of_codes_and_standards.asp
9. CSA W117.2. "Safety in Welding, Cutting and Allied Processes". Canadian Standards Association, 178 Rexdale Blvd., Rexdale, Ontario, Canada M9W 1R3 http://ccinfoweb.ccohs.ca/
10. ANSI Z535 Safety Alerting Standards http://www.nssn.org/
11. Refer to your local codes.

1.04 Declaration of Conformity

Manufacturer: Victor Technologies
Address: 2800 Airport Rd.
Denton, TX 76208
USA

Description of equipment: Gouging Equipment (GMAW, MMAW, GTAW, CAG and wirefeeders). Including, but not limited to Arcair-Matic N7500 Gouging System and associated accessories.

Serial numbers are unique with each individual piece of equipment and details the description and parts that are used to manufacture a unit and date of manufacture.

The equipment conforms to all applicable aspects and regulations of the 'Low Voltage Directive' (Directive 73/23/EU, as recently changed in Directive 93/68/EU and to the National legislation for the enforcement of the Directive.

National Standard and Technical Specifications

The product is designed and manufactured to a number of standards and technical requirements among them are:

- AS1966-1 applicable to welding equipment and associated accessories.
- AS/NZS 3652-(EMC Directive EN50199) applicable to arc welding equipment - generic emissions and regulations.
- EN60974-1 applicable to welding equipment and associated accessories.
- AS60974.1 applicable to welding equipment and associated accessories.
- IEC 60974-1 applicable to welding equipment and associated accessories
- 2002/95/EC RoHS directive

Extensive product design verification is conducted at the manufacturing facility as part of the routine design and manufacturing process, to ensure the product is safe and performs as specified. Rigorous testing is incorporated into the manufacturing process to ensure the manufactured product meets or exceeds all design specifications.

Victor Arcair has been manufacturing and merchandising an extensive equipment range with superior performance, ultra safe operation and world class quality for years and will continue to achieve excellence.

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SECTION 2: SPECIFICATIONS

2.01 Arcair-Matic N7500 Gouging System

The Arcair-Matic N7500 Gouging System adds new dimensions of flexibility and control in modern weld preparation. It's the most advanced air carbon-arc gouging/grooving system in the world. The N7500 System assures improved productivity in the following ways:

- Higher yields of optimum quality end product
- Dramatic reductions of man-hours and process cost
- Expanded areas of applicability

FEATURES

Remote Pendant providing complete control of the gouging operation where it needs to be .... in the welder/operator hands.

All functions from determining gouge parameters, start/stop function, travel delay, and the capability to manually feed or retract the electrode in the Torch Head. The welder/operator can view the amperage and voltage during gouging sequence easily while maintaining the electrode on the weld seam that's being back gouged.

A single electrode contact shoe assembly accepts the entire range of Victor Arcair gouging electrodes from 5/16" (7.9 mm) through 3/4" (19.1 mm).

The N7500 Torch Head eliminates the necessity of stocking or changing contact shoe assemblies when changing electrode sizes.

The gouging system uses the Power Supply "contactor" to ensure that the gouging current is only present when the welder/operator presses the "start" button on the Remote Pendant.

System is easily connected to the various power supplies available in the industry.

Ensures conformity to pre-determined, pre-selected groove depth and width specifications.

Welder/Operator can use the "Parameter Guide" option on the Remote Pendant to view the recommended amperage and travel speed once the electrode and gouge depth is chosen.

A unique "travel delay" function assures excellent groove geometry at the very beginning of the groove.

This function eliminates a sloped groove at the beginning of the gouge, eliminating the need for a starting pad.

No current detect and low voltage functions shut down the system when these conditions are sensed.

These functions ensure optimum groove quality and prevent damage to the equipment and work.

Redesigned Torch Head

Redesigned Torch Head with extended front end to give the welder/operator better range of viewing during the gouging operation ensuring the electrode is maintained in the correct position to the weld seam.

2.02 N7500 Specifications

Rated Output	
Output Current	400-1600
Duty Cycle	MAX. 1600A/42V @ 100%
Open Circuit Voltage	Minimum of 60VDC
Rated Input	
Rated Input Voltage	110V - 220V
Rated Input Amperage	5A
Input Frequency	50/60 Hz
Control Box Controls	
5A Circuit Breaker ON/OFF Switch w/reset	ON/OFF Switch w/reset
110V/220V Control Box Power Input	3-Pin Socket
110V Auxiliary Outlet	4A, 110V
220V Auxiliary Outlet	4A, 220V
(2) 5A Circuit Breaker	1 off push-button circuit breaker for the 110V outlet 1 off push-button circuit breaker for the 220V outlet
Circuit Interface to Remote Pendant	7-Pin Socket
Circuit Interface to Torch Head	6-Pin Socket
Circuit Interface to Power Supply	6-Pin Socket
Signal Interface to Work Piece	1-Pin Socket

Table 2-1: N7500 Specifications

N7500 SYSTEM

The N7500 System produces in a single pass uniform “U” or “J” grooves of various depths up to 1-1/8” (28.6 mm). Two or more passes produce grooves of greater depth. Through continuous control of arc voltage or amperage and a constant travel speed, the groove is held within 0.025” (0.635 mm) target depth. Victor Arcair Jointed Jetrods® Electrodes, with tapered male and female ends, make it possible to produce grooves of unlimited length.

Control elements and circuitry for the N7500 System are housed in a Control Box and a splash-proof Pendant. Gouging operations are managed remotely using the Remote Pendant with a multi-function LCD display and touch pad controls.

Groove depth and width are controlled in two ways:

- By changing the travel carriage’s forward speed or by changing the work piece rotational speed.
- By changing the electrode’s diameter and increasing or decreasing amperage.

NOTE

Remote Pendant is NOT submersible.

This manual has been structured to provide the user with all the information required for assembly, operation and troubleshooting of the N7500 System. Illustrations, charts and other supporting data are provided to bridge the gap between theory and practice.

In addition, the N7500 System can be integrated with any mechanized travel system that provides forward travel over a steel plate while in the flat, vertical, or over-head positions. The N7500 Torch Head can also be mounted in a stationary position for work on rotating shafts, round steel, or a vessel. In a stationary set up the work-piece rotates in a *counter-clockwise direction* and the Torch Head is generally located at the work-piece’s 4 o’clock position.

For additional information, contact your local Victor Arcair Distributor or Victor Technologies.

SECTION 3:
SYSTEM COMPONENT DESCRIPTION

There are three (3) main components making up the Arcair-Matic N7500 Gouging System; Torch Head, Control Box, and Remote Pendant.

3.01 Control Box

Figure 3-1: Control Box

The Control Box controls the system's operation before, during and after gouging. Under command of the Remote Pendant, the Control Box supplies DC power and compressed air to the Torch Head. The unit has a power cord for required AC voltage, clamping fixtures, and handles for secure lifting. See "Table 3-2: Control Box Features" for each of the Control Box's connectors/fittings and the function of each component.

Item	Fitting	Function
1	Travel System Power Connector	Two (2) 4 amp AC power receptacles provide AC power for a travel system if needed, 110 VAC or 220 VAC. The Remote Pendant controls when these receptacles receive AC power through the Remote Pendant travel delay circuitry. **Only the AC power voltage (110V or 220V from the Input Power AC) that the Control Box is connected to will be delivered.**
2	Air Out Conn.	Delivers compressed shop air to the Torch Head when the START "Start" button is pressed on the Remote Pendant.
3	Connector to Torch Head Electrode Motor	Delivers the signal from the Control Box to the Torch Head to either feed or retract the electrode to maintain the preset arc voltage.
4	Remote Pendant Connector	Links the Remote Pendant to the Control Box to initiate start/stop of the gouging operation.
5	Circuit Breaker w/reset	Circuit breaker reset push button for 110 VAC and 220 VAC AC Travel System Power Connector receptacles.
6	ON/OFF switch	Control Box ON/OFF control switch with built in 5 amp circuit breaker and reset.
7	Input and Output DC Power Conn.	Output and Input DC (+) positive power buss connections.
8	Air In Conn.	This port accepts compressed shop air to the Control Box.
9	Power Supply Connector	Links the Control Box to the Power Supply. On demand from the Remote Pendant the internal contactor of the Power Supply can be closed and opened to deliver the current to the Torch Head.
10	Input Power (AC)	Delivers AC voltage to the Control Box from a standard wall receptacle.
11	Signal Wire Conn.	Allows the Control Box to detect open circuit voltage when the Power Supply contactor is closed.
12	Control Box Hold Down Fixture	Hold down fixtures located on both sides of the Control Box to allow fastening to a base.
13	Remote Pendant Cradle	Secure holding fixture for Remote Pendant.

Table 3-2: Control Box Features

NOTE

The 110V and 220V power supply receptacles may be used to run any device that has the same line-voltage requirements and that require "ON-OFF" or "Start-Stop" control. However, any such device must be rated with a maximum current draw of 4 amperes.

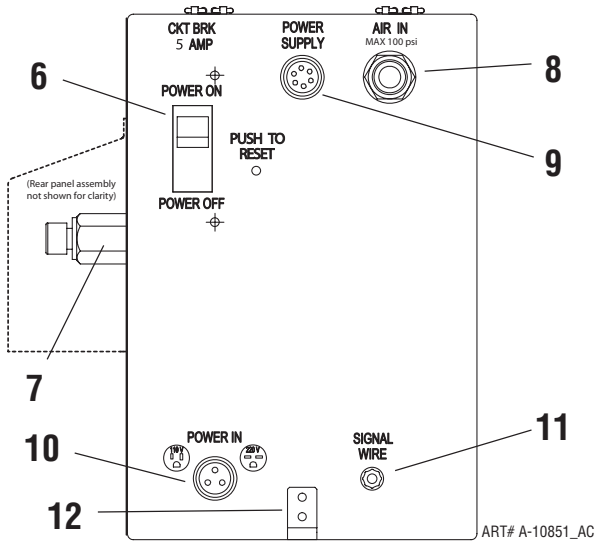


Figure 3-3: LEFT Side of Control Box

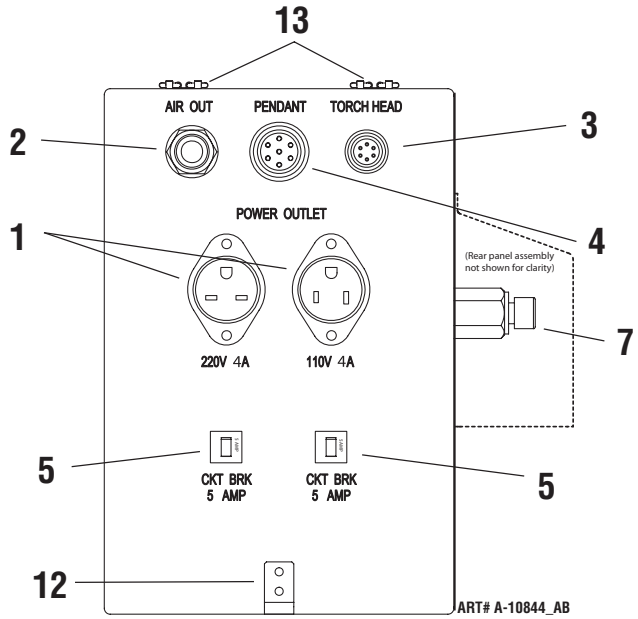


Figure 3-4: RIGHT Side of Control Box

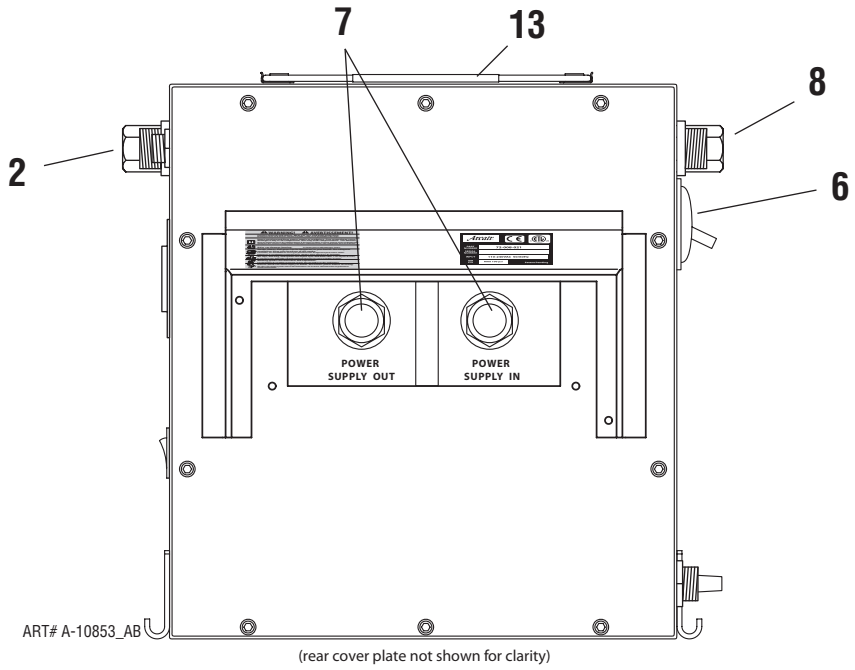


Figure 3-5: BACK of Control Box

3.02 Torch Head

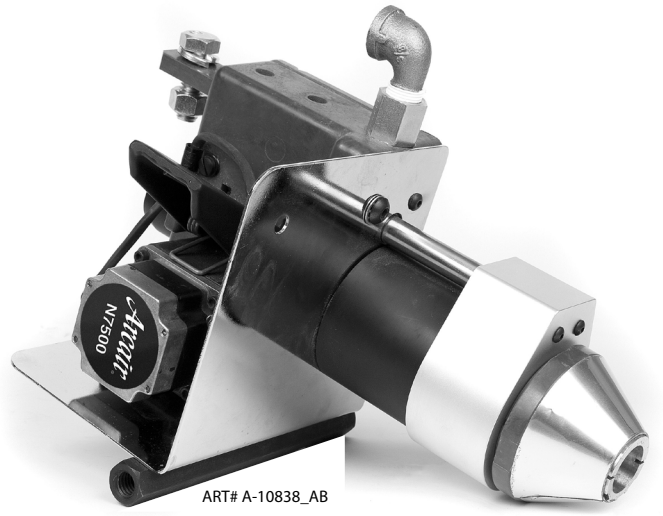


Figure 3-6: Torch Head

The N7500 Torch Head feeds the jointed electrodes down to the work surface. The Control Box controls and signals the motor on the Torch Head to feed or retract the electrode. This action maintains arc voltage or current, set on the Remote Pendant. The Control Box (See "Figure 3-1: Control Box" on page 3-1) channels the DC current from the DC Welding Power Supply to the Torch Head using standard welding cables. Compressed air coming from the Control Box connects at the Torch Head with a 3/8" NPT female pipe elbow.

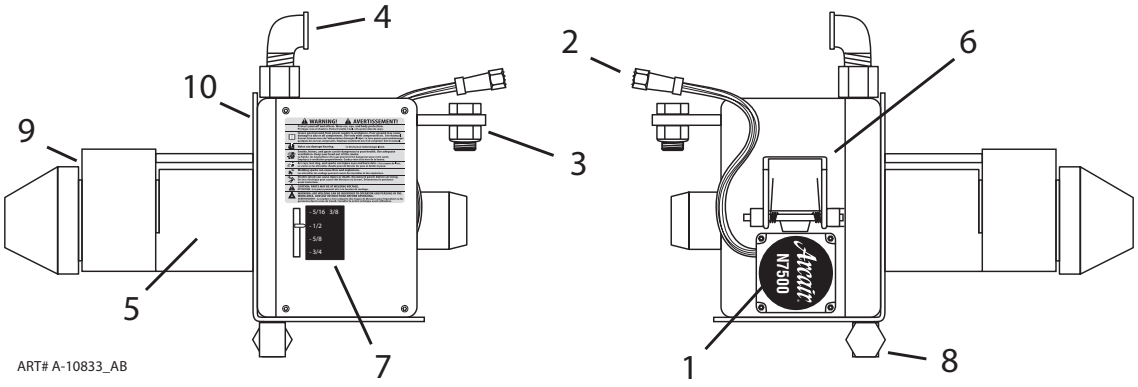


Figure 3-7: Torch Head Components

Item	Fitting	Function
1	Motor	This motor feeds the electrode away from and towards the work. The Motor's action is controlled by the Pendant settings.
2	Motor Cable	This Motor Cable end is connected to the Control Box via a cable assembly that comes in 3, 15, 25, or 50 foot lengths. See "9.07 Motor Cable Assembly" on page 9-4 for part numbers.
3	DC Power Cable Busbar	This is the connection point on the Torch Head for the DC power cables from the Control Box.
4	Air Inlet	Air is fed into a 3/8" NPT fitting on the Torch Head using an air supply line from the Control Box.
5	Air Plenum	This housing circulates air around electrode housing before releasing in a directed spray to remove gouging slag.
6	Electrode Release Lever	This lever is used to open the Motor Feed assembly allowing the operator to manually remove or replace an Electrode.
7	Electrode Size	The guide inside helps the insertion of the electrode through the Torch Head.
8	Carriage Mounting Fixture	The mounting bracket that comes with the Torch Head allows it to fasten to a vertical adjustment assembly which is either mounted on a travel system or stationary fixture.
9	Air Plenum Shield	This metal shield protects the Air Plenum housing from slag splash back.
10	Torch Head Shield	This metal shield protects the motor and housing from slag splash back.

Table 3-8: Torch Head Features

3.03 Remote Pendant

Remote Pendant provides the welder/operator the ability to:

- Start/stop the gouging operation,
- Manually jog of the air carbon-arc electrode in the Torch Head prior to gouging,
- Pre-set options to ensure proper operation of the system.

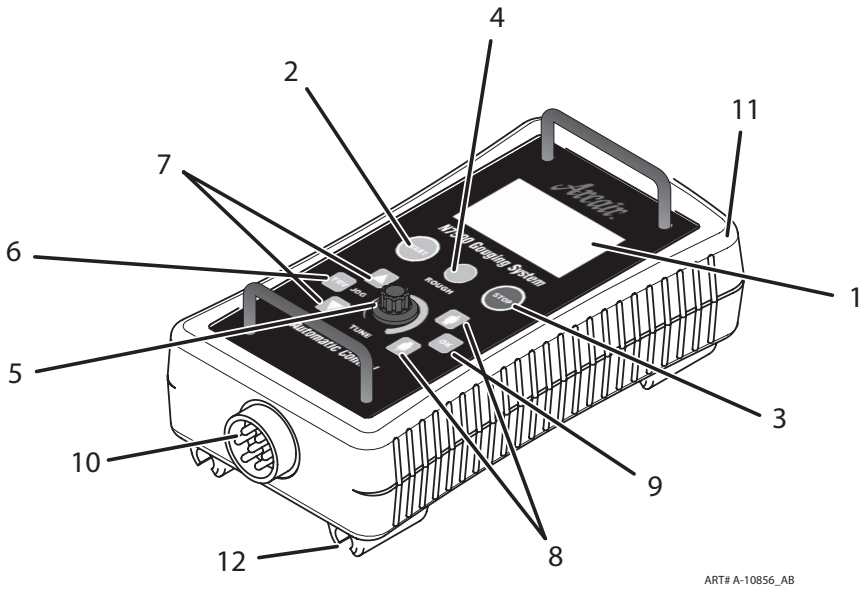


Figure 3-9: Remote Pendant

Item	Feature
1	Mode-indicator Display
2	START Start Button
3	STOP Stop Button
4	Rough (Machining)
5	Rotary Dial
6	TRV Travel Button

Item	Feature
7	Jog Up/Down Travel
8	Mode Selector
9	OK OK Button
10	Connector
11	Bumper
12	Grip Feet

Table 3-10: Remote Pendant Controls

For additional details on the operation of the Remote Pendant see “5.04 Remote Pendant Programming” on page 5-3. For storage information see “4.07 Remote Pendant Storage” on page 4-9.

3.04 Electrodes

The most important part of the N7500 System is the electrode. Since the N7500 system uses only DC power, the electrodes must be formulated and manufactured for use exclusively with Direct Current.

The use of Victor Arcair Jointed Jetrods Copperclad DC Electrodes is highly recommended. These electrodes are manufactured to Victor Arcair specifications to provide the best electrical conductivity, to maintain proper electrode diameter at the point of the arc, and to minimize carbon sublimation. A male/female joint enables electrodes to be joined together while the gouging operation is taking place.

Electrode Diameter		Gouge Width		Amperage	
Inch	mm	Inch	mm	Min	Max
5/16	7.9	7/16	11.1	400	450
3/8	9.5	1/2	12.7	450	600
1/2	12.7	13/16	20.7	800	1000
5/8	15.9	15/16	24.9	1000	1250
3/4	19.1	1 1/16	27.0	1250	1600

Chart 3-11: Electrode Selection

The formulation and design of the Jetrods Electrodes embody numerous laboratory-proven advantages under the user's production conditions. Among these advantages are:

- Cooler operation due to a small incandescent area at the tip and joint
- Excellent arc stability
- High metal-removal rates
- Uniformity of diameter
- Clean grooves or cuts

3.05 Gouging Operation Settings

"Table 3-12: Operating Parameters"" shows recommended operating amperage by electrode sizes. The travel speeds listed for each size carbon and gouge depth were derived in the laboratory using a 1500 amp Power Supply. Your results may vary depending on the arc current, voltage and other parameters you use.

Automatic Gouging Operating Data						
Electrode Diameter		Desired Depth		DC Current	Travel Speed Per Min.	
Inch	mm	Inch	mm	Amps	Inch	mm
5/16	7.9	1/8	3.2	400	65	1651
5/16	7.9	3/16	4.8	400	45	1143
5/16	7.9	1/4	6.4	450	36	914
5/16	7.9	5/16	7.9	450	33	838
5/16	7.9	7/16	11.1	500	22.5	572
3/8	9.5	1/8	3.2	500	70	1778
3/8	9.5	3/16	4.8	500	44	1118
3/8	9.5	1/4	6.4	500	35	889
3/8	9.5	3/8	9.5	500	20	508
3/8	9.5	9/16	14.3	500	17.5	445
1/2	12.7	1/8	3.2	850	96	2438
1/2	12.7	1/4	6.4	850	57	1448
1/2	12.7	3/8	9.5	850	35	889
1/2	12.7	1/2	12.7	850	24	610
1/2	12.7	3/4	19.1	850	17.5	445
5/8	15.9	1/4	6.4	1250	72	1829
5/8	15.9	3/8	9.5	1250	48	1219
5/8	15.9	1/2	12.7	1250	37	940
5/8	15.9	5/8	15.9	1250	30	762
5/8	15.9	15/16	23.8	1250	19.5	495
3/4	19.1	1/4	6.4	1400	72	1829
3/4	19.1	3/8	9.5	1400	42	1068
3/4	19.1	1/2	12.7	1400	34	865
3/4	19.1	5/8	15.9	1400	27	687
3/4	19.1	3/4	19.1	1400	22	560
3/4	19.1	1 1/8	28.6	1400	13	330

Table 3-12: Operating Parameters

NOTE

If you want a groove depth that is greater than 1-1/2 times the diameter of the electrode being used, make the groove in two or more passes.

3.06 Selecting the Proper Electrode Diameter

Your choice should be based on the depth and width of the gouge you need. If you want a gouge 1-1/2 times greater than the diameter of the electrode being used, make the groove in two or more passes or oscillate the Torch Head.

3.07 Keeping Electrodes Dry

Keep electrodes dry. Damp electrodes should be dried before using. (Ten hours at 300°F [176.7°C]) Wet electrodes may shatter from internal steam pressure when an arc is struck.

POWER SUPPLY (SUPPLIED BY USER) FOR THE N7500 SYSTEM

⚠ *WARNING*

Direct current/electrode positive (reverse polarity) is required for the N7500 System. Use direct current/electrode negative (straight polarity) for special applications. ***DO NOT*** *use alternating current with the system.*

⚠ *CAUTION*

Power Supplies must be rated for 100% duty cycle at the amperage required for the size (diameter) electrode used. Contact the manufacturer of the Power Supply for paralleling procedures or with questions concerning amperage ratings and duty cycles.

NOTE

Recommendations are based on a 4 volt DC drop per 100 ft. (30.48 m) length given is one-half the sum of lengths of electrode and ground leads. Inadequate grounding may cause cable overheating. There should be at least 1 square inch (6.45 cm^2) of contact per 1000 amps.

DC Welding Power Supply with a minimum Open-Circuit Voltage (OCV) of 60 volts and 45 volts at rated load supply the DC current for the N7500 System. Use single Power Supplies rated at 1,000 or 1,500 amperes to get enough amperage for larger diameter electrodes. Power Supplies may be paralleled in combinations of two or more similar units.

3.08 Secondary Power Cables (Welding Leads)

Recommended Number and Size of Secondary Cables												
Amps	25 ft. (7.5 m)		50 ft. (15 m)		100 ft. (30 m)		150 ft. (46 m)		200 ft. (61 m)		250 ft. (76 m)	
	No.	Size	No.	Size	No.	Size	No.	Size	No.	Size	No.	Size
100		4		4		1	1	1/0	1	2/0	1	4/0
200		3		2	1	1/0	1	3/0	1	3/0	3	3/0
300		2		1	1	3/0	2	2/0	2	4/0	4	4/0
400		2	1	1/0	1	4/0	3	3/0	3	4/0		
500		1	1	2/0	2	2/0	3	4/0	4	4/0		
600		1	1	3/0	2	3/0	3	4/0				
800	1	3/0	1	4/0	2	4/0	5	4/0				
1000	1	4/0	2	2/0	3	3/0						
1200	2	2/0	2	3/0	3	4/0						
1400	2	4/0	2	4/0	4	3/0						
1600	3	3/0	2	4/0	4	4/0						
1800	2	4/0	3	3/0								
2000	3	4/0	3	4/0								

Table 3-13: Power Cable Requirements

Choose the number and size of secondary power cables on the basis of the combined length of both the positive (Electrode) and negative (work piece/ground) cables to ensure greatest efficiency and safe operation in terms of 100% duty cycle.

3.09 Compressed Air

Compressed air flows from an air nozzle in the N7500 Torch Head, travels parallel along the axis of the electrode, and is directed into the molten puddle. The air solenoid included in the N7500 Control Box accepts ordinary shop compressed air. An air regulator (supplied by user) should be mounted on the air line and adjacent to the Control Box. Use at least 60 psi, but not greater than 100 psi input of compressed air to the regulator. "Table 3-14: Compressed Air Input Requirements" shows recommended pressure and volume inputs:

Compressed Air Requirements			
Air Pressure		Air Volume	
psi*	kg/cm^2	CFM	$m^3/min.$
60	4.2	46	1.3
80	5.6	63	1.8
100	7.0	81	2.3

Table 3-14: Compressed Air Input Requirements

*To convert psi to kpa (kilopascals), multiply by 6.895

3.10 Main Air Line

Up to the air regulator mounted (see "Figure 4-9: Assembly Stage 1" on page 4-4) on the N7500 system, the Primary Air Line may be either rigid or flexible. The inside diameter of the Primary Air Line varies with the length of the line between compressor and regulator.

Recommended Air Line Requirements

Line length up to 25' (7.6 m): 1/2" (12.7 mm) inside diameter
Line length above 26' (7.9 m): 5/8" (15.9 mm) inside diameter

SECTION 4:
ASSEMBLY AND INSTALLATION

CAUTION

Be sure to read this manual completely before trying to install or use this equipment. Call your Victor Arcair Representative or Distributor if you have any questions.

4.01 Receiving and Handling

Remove all components from the boxes. Using the packing lists, check to be sure you have all parts. Inspect each part for damage. Buyers may file claims for loss or damage with the carrier.

Unpacking Components

Write down the Part Number and Serial Number for the Control Box, Remote Pendant, and Torch Head on the Warranty page in the back of this book.

Figure 4-1: Control Box

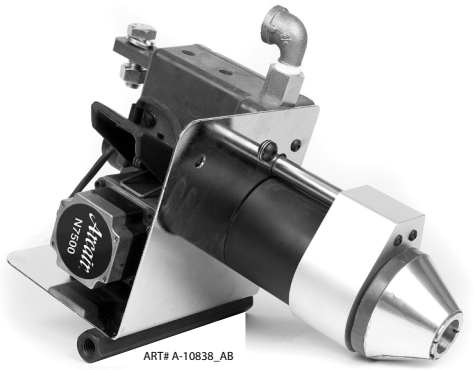


Figure 4-2: Torch Head

Figure 4-3: Remote Pendant

When asking about your equipment, be sure to give its full serial and model number(s) that appear on the nameplate of each component. The N7500 has name plates on each major component; Control Box, Torch Head, and Remote Pendant. The Torch Head and the Pendant have smaller nameplates than the Control Box. The Control Box nameplate is located on the rear plate. The nameplate for the Torch Head is located on the inside shield and the nameplate for the Pendant is on it's back surface.

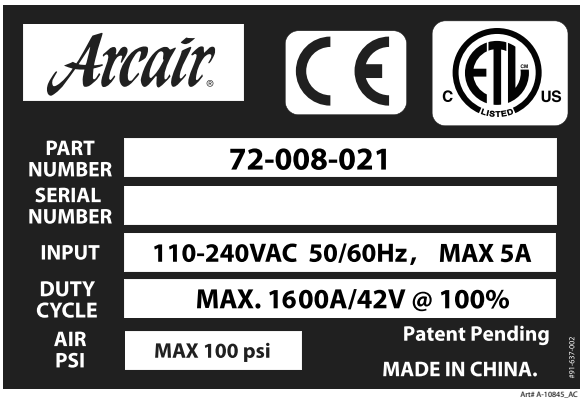


Figure 4-4: Control Box Nameplate

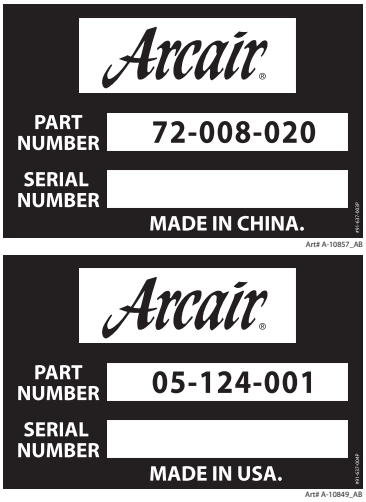


Figure 4-5: Remote Pendant and Torch Head Nameplates

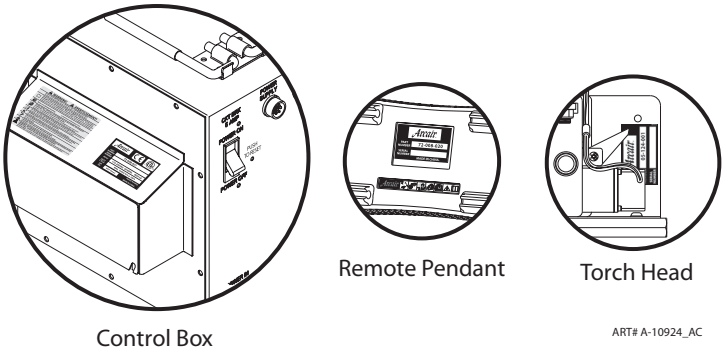


Figure 4-6: Nameplate Locations

NOTE

When using the Arcair-Matic N7500 Gouging System with a travel system, the Control Box should be centrally placed.

Prior to installing the N7500 components please have the following components or items in place:

WARNING

Connections to 'live' or "hot" are inherently dangerous. ***DO NOT*** *service or repair equipment with power ON.* ***DO NOT*** *operate equipment with protective insulators or covers removed.*

- Confirm that your Power Supply cable size is rated for the work and the cable ends have fittings that will mount on the Control Box Power Supply buss poles (See Step 6). See "Table 3-13: Power Cable Requirements" on page 3-10.
- Confirm that your air supply is rated for the work (See Step 6). See "Table 3-14: Compressed Air Input Requirements" on page 3-10.

4.02 Assembly

The assembly instruction steps are divided into five groups; Miscellaneous Cable/Plumbing Assemblies, Control Box, Torch Head, Remote Pendant, and Final Connections. Remote Pendant Storage is located at the end of this section.

4.03 Miscellaneous Cable/Plumbing Assemblies

Cable assemblies required to operate the N7500 system come in various lengths and must be specified by the end user to meet their specific needs.

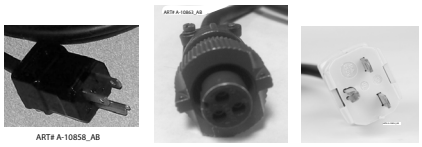
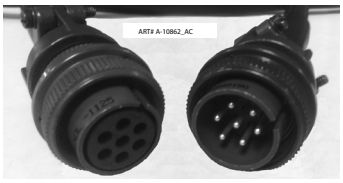
Cable Description ***Routing***	
AC Power Cable Assembly Plug rated for 110VAC 60Hz or 220VAC 50Hz with 3 pin connector at opposite end. ***Outside power to Control Box***	
Remote Pendant Cable Assembly Large 7 pin connector with male/female ends. ***Pendant to Control Box***	
Motor Cable (on Torch Head) Assembly 6 pin connector with male/female connectors. ***Control Box to Torch Head***	
Power Supply Communication Assembly 6 pin connector with female connector and a cut end. ***Control Box to Power Supply***	
DC Power Cable Assembly Based on customer requirements. ***Control Box to Torch Head***	
Air Hose Assembly Based on customer requirements. ***Control Box to Torch Head***	

Table 4-7: Cable Identification

4.04 Control Box Installation

Determine where the Control Box should be located in relationship to where the gouging will take place. It is not recommended to carry the Control Box on any travel system other than the Victor Arcair Titan® Machine Carriage due to the added weight of the Control Box and the weight of the power cables coming from the DC Power Supply.

The Control Box can be secured to a stationary surface with the mounting brackets on both sides. Refer to "Table 3-2: Control Box Features" on page 3-2 for the mounting brackets and "Figure 3-4: RIGHT Side of Control Box" and "Figure 3-5: BACK of Control Box" on page 3-3 for bracket locations.

NOTE

DO NOT *force connections. All connectors should be fastened easily. Be sure to tighten connections as you go through each step. Avoid crimping hoses or wires.*

WARNING

Select the receptacle voltage that correctly matches the plug and power requirements of the Carriage System.

WARNING

Confirm that the Power Supply and Control Box Power In switches are OFF.

Make the following connections from Power Supply to Control Box and work piece. See "Figure 4-8: Assembly Stage 1".

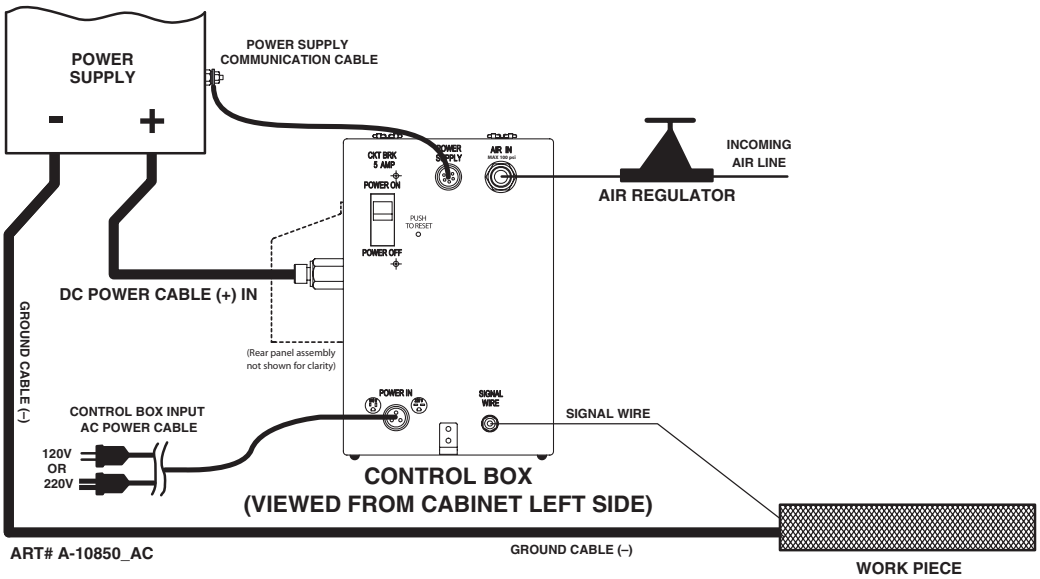


Figure 4-8: Assembly Stage 1

1. Connect the air regulator to the side of the Control Box labeled “AIR IN”. Preset the regulator to the recommended operating pressure based on "Table 3-14: Compressed Air Input Requirements" on page 3-10. (The compressed air inlet and outlet fittings on the Control Box are 1/2-14 NPT.)
2. Connect the incoming shop compressed air line to the air regulator. Charge the shop compressed air supply to the air regulator on the Control Box’s AIR IN side to confirm air pressure is within recommended specifications. Refer to the specifications listed on the Control Box nameplate.
3. Attach the AC Power Cable to the connector labeled “POWER IN”.
4. Loosen the screws holding the Control Box rear cover plate. Re-position and tighten one screw.

WARNING

Confirm the DC Power Supply is OFF before beginning the next step.

5. Connect the positive (+) Power Supply cable(s) of the DC Power Supply to the busbar terminal on the back side of the Control Box labeled “POWER SUPPLY IN”. This connection **must be wrench tight** to avoid over heating of the connection. Refer to *"Table 3-13: Power Cable Requirements" on page 3-10* in this manual for proper amount and size Power Supply cabling that you plan to use.

NOTE

It is recommended to use a minimum of two Power Cable assemblies with the N7500. The cables should be connected at the same points on the Control Box. Refer to "Table 3-13: Power Cable Requirements" on page 3-10.

6. Connect the negative (-) cable(s) of the DC Power Supply to the work piece.
7. A signal wire (not supplied) must be attached to the work piece and the other end to the ground post on the left side of the Control Box labeled “SIGNAL WIRE”.

NOTE

Use standard #12 insulated copper wire as your signal wire. It must be long enough to prevent stress on the Control Box connection.

8. Connect the Power Supply Communication Cable Assembly (6 pin female connector) to the side of the Control Box labeled “POWER SUPPLY” and run it back to the Power Supply. Refer to "Table 4-7: Cable Identification" on page 4-3 for cable identification. "Figure 4-9: Power Supply Comm. Cable Pin Configuration" below illustrates the pin arrangement for the Power Supply Communication Cable and "Table 4-10: Standard Wiring Connections" has the wire connection schedule for several common power supplies. If your Power Supply is not listed here please refer to the Owner’s manual of your Power Supply for correct wiring instructions.

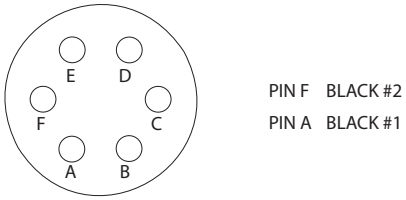


Figure 4-9: Power Supply Comm. Cable Pin Configuration

Power Supply Control Connection Chart						
Brand	Model	N7500 Control Box Power Supply Comm. Cable				
		Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
Lincoln	Lincoln Idealarc® DC 600	2	4			
	Lincoln Idealarc DC 600 PRO	2	4			
	Lincoln Idealarc DC 650 PRO	2	4			
	Lincoln Idealarc DC 655 - EUROPE	2	4			
	Lincoln Idealarc DC 655	2	4			
	Lincoln Idealarc DC 750	2	4			
	Lincoln Idealarc DC 1000 (Prior to Nov 1991)	2	4			
	Lincoln Idealarc DC 1000 (for code numbers 9919 - 9925, 10293, 11305, 11330, 11331, 11332, 11333, 11334, 11681 thru 11684)	2	4			
	Lincoln Idealarc DC 1500 (Prior to May 1979)	2	4			
	Lincoln Idealarc 1500 (for Code Numbers 8294 and above)	2	4			
	Lincoln RED-D-ARC DC 600	2	4			
Miller	Miller BIG BLUE 500D - 600X	A or I	B or J			
	Miller Deltaweld® 450-650	A or I	B or J			
	Miller Deltaweld SERIES	A or I	B or J			
	Miller Dimension™ 650	A or I	B or J			
	Miller Dimension 1000	A or I	B or J			
	Miller Dimension SUBARC	A or I	B or J			
	Miller Dynasty® 700 - MAXSTAR 700	A	B			
	Miller Gold Star® 300SS - 400SS - 600SS	A	B			
ESAB	ESAB 653 CVCC	U	V			
	ESAB MULTIPOWER 460 PULSE	U	V			

Table 4-10: Standard Wiring Connections

4.05 Torch Head Installation

Make connections from Control Box to the Torch Head. See "Figure 4-11: Assembly Stage 2".

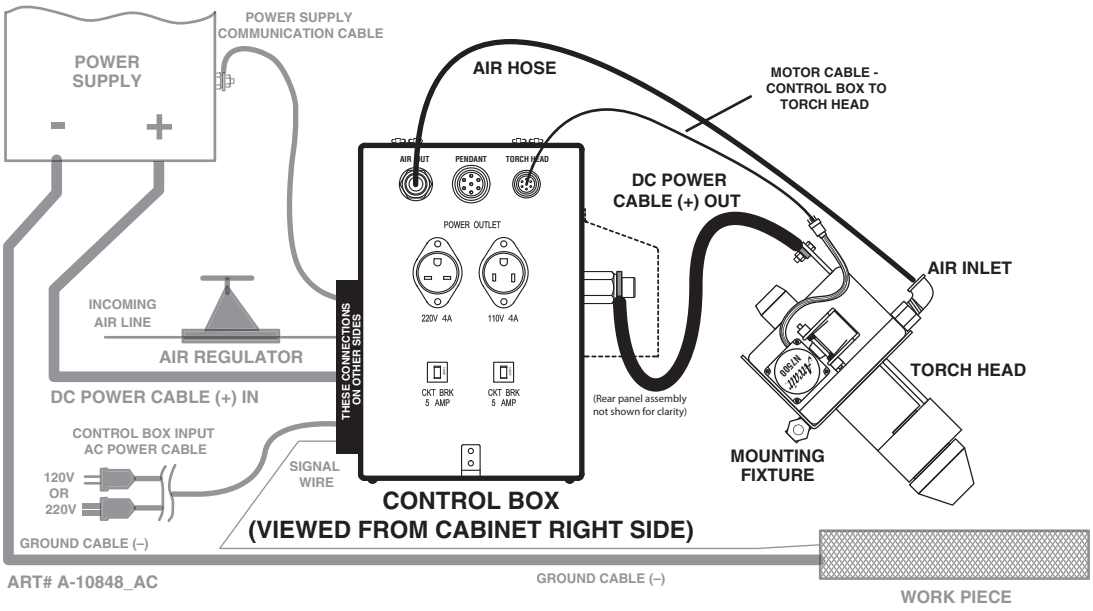


Figure 4-11: Assembly Stage 2

9. Mount the Torch Head to the vertical adjustment assembly located on the travel system or fixed stationary fixture using the mounting hardware supplied with the Torch Head. Further adjustments will be discussed in the operating section of this manual. See "5.02 Position Torch Head" and "5.03 Insert the Electrode" on page 5-2.

NOTE

Tuning the mounting position of the Torch Head or adjusting the traveler fixture or carriage system may be required to achieve best gouging results.

10. Connect the DC power cable(s) to the Torch Head busbar and to the busbar terminal on the back side of the Control Box labeled “POWER SUPPLY OUT”. These connections **must be wrench tight** to avoid overheating the connection. Slide the cable boot over the busbar on the Torch Head. **Use the 1/2”-13 hex head bolt and nut supplied for the cable connection on the Torch Head busbar.**
11. Return the Control Box Power Supply cover plate to its original position and tighten both screws.
12. Connect the Air Hose Assembly to the Torch Head and to the side of the Control Box labeled “AIR OUT”. Slide the rubber boot over the connection on the Torch Head.
13. Connect the Torch Head Motor Cable Assembly to the connector on the side of the Control Box labeled “TORCH HEAD” and the other end to the motor cable connection on the Torch Head. This cable has a 6 pin connector at each end. Refer to "Table 4-7: Cable Identification" on page 4-3.

4.06 Remote Pendant Installation

Make the following connections from the Pendant to the Control Box. See "Figure 4-12: Assembly Stage 3".

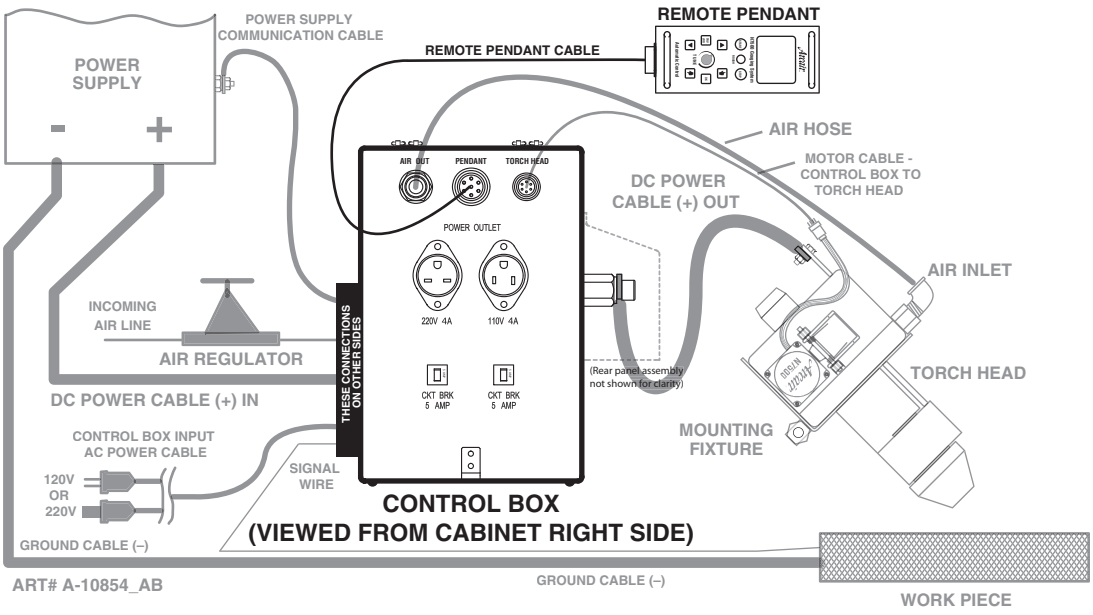


Figure 4-12: Assembly Stage 3

14. Connect the Remote Pendant Cable Assembly to the Remote Pendant and the Control Box. Cable has a large 7 pin connector at each end. Refer to "Table 4-7: Cable Identification" on page 4-3.
15. Plug the travel system grounded power cord into the receptacle labeled “POWER OUTLET”.

WARNING

Select the receptacle voltage that correctly matches the plug and power requirements of the Carriage System.

4.07 Remote Pendant Storage

Use safe storage practices when storing the Remote Pendant and cable. When not in use, mount the Remote Pendant to the top of the Control Box as shown below.

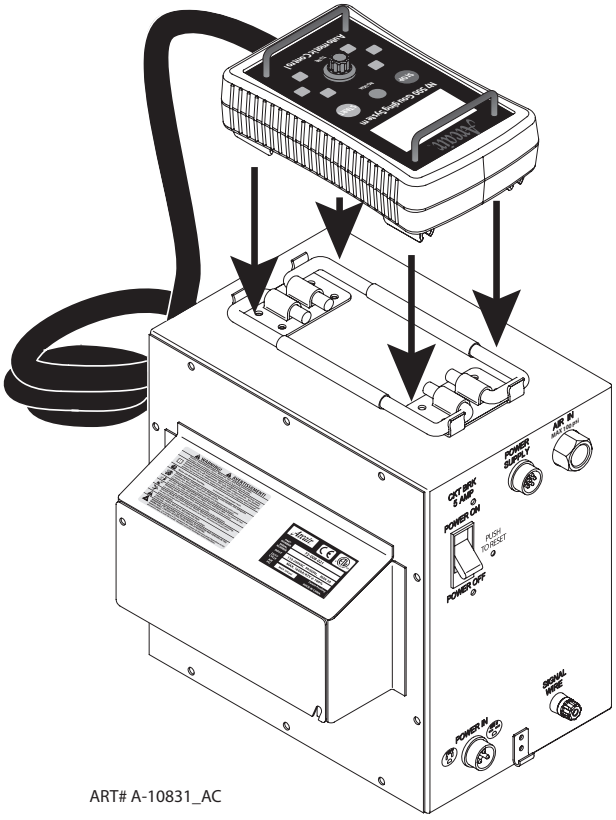


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Figure 4-13: Pendant Mounting

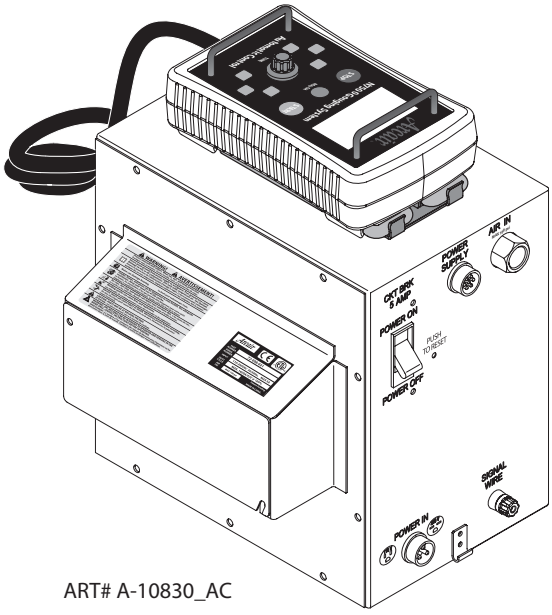

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Figure 4-14: Pendant Mounted

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SECTION 5: OPERATING THE N7500 SYSTEM

5.01 Remote Pendant Operation

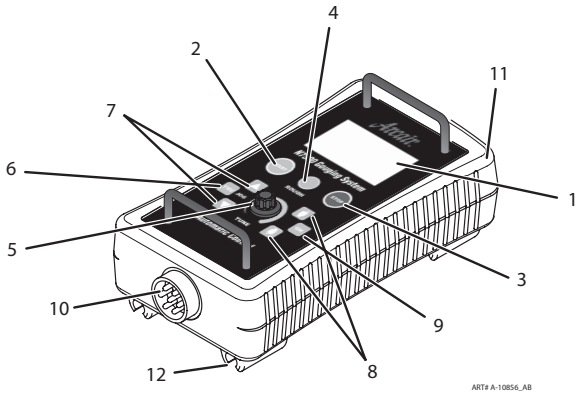

Figure 5-1: Remote Pendant

Item No.	Feature	Function
1	Mode-indicator Display	Digital display of current mode setting/adjustment value/rate.
2	START Start Button	Signals the Power Supply to **close** it's internal contactor to supply current to the Torch Head and the electrode in the Torch Head feeds down to begin the gouging operation.
3	STOP Stop Button	Signals the Power Supply to **open** it's internal contactor shutting OFF the current to the Torch Head and the electrode in the Torch Head will retract away from the work surface.
4	Rough (Machining)	Stalls the Torch Head feed motor while maintaining current to the electrode to avoid gouging to irregular surface defects.
5	Rotary Dial	Potentiometer to adjust settings based on operation mode.
6	TRV Travel Button	When pressed, supplies AC voltage to the travel system that is plugged into the Control Box. Used when adjustments are required to locate the electrode to the start point of gouging.
7	Jog Up/Down Travel	Feeds or retracts the electrode in the Torch Head
8	Mode Selector	Shifts mode (program display) selection in digital display to access a setting or adjustment.
9	OK OK Button	Enters and Accepts data adjustments for the mode of operation.
10	Connector	Cable connection running from the Remote Pendant to Control Box
11	Bumper	Protective housing.
12	Grip Feet	Plastic snap on feet to fasten Remote Pendant to Control Box.

Table 5-2: Remote Pendant Controls

Determine whether you will use a Constant Current (CC) or Constant Voltage (CV) Power Supply. A menu option on the Remote Pendant LED will prompt you to choose CC or CV to match your Power Supply.

5.02 Position Torch Head

1. Position the Torch Head above the work piece you want to start gouging.
2. Using the Angle Gauge supplied with the N7500, adjust the Torch Head to the work piece. The angle gauge sets the torch angle, electrode stick-out and aligns the air nozzle.
3. The air should flow between the electrode and the work piece.

Charts, graphs and other data in this manual are based on a 45° electrode angle, but you can use electrode angles from 45° to 60°. Users should develop their own standards based on shop conditions and application.

5.03 Insert the Electrode

1. Adjust the Electrode Guide Block for the electrode diameter being used. Loosen thumbscrew, adjust, and then tighten the thumbscrew again (See “Figure 5-3: Torch Head Parts”).
2. Push the Electrode Release (clamping) Lever down and insert the electrode FEMALE END FIRST into the rear of the Torch Head until it protrudes through the nozzle. The two-legged spring and protective shield should rest squarely on top of the electrode. To check their positions, look down the rear of the torch. If the spring and shield are pushed to either side, withdraw the electrode and insert it again. Release the clamping lever.

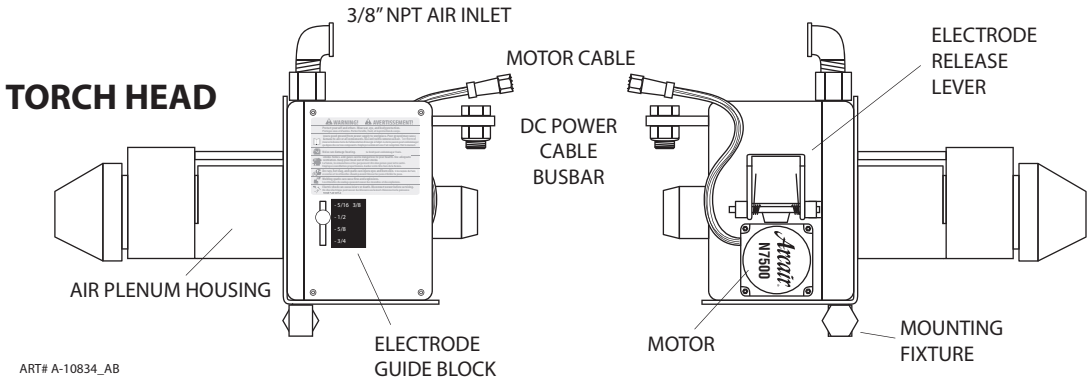

Figure 5-3: Torch Head Parts

3. Flip the power switch located on the side of the Control Box labeled “POWER OFF” & “POWER ON” to the “ON” position.
4. The electrode will retract for several seconds and stop.
5. The Mode Indicator Display on the Remote Pendant will light up showing the various menu options pre-programmed in the unit.

   “Menu Setting” is the default display whenever the unit is powered up.

5.04 Remote Pendant Programming

The first (default) menu setting option is “Power Mode”, see “Figure 5-4: Default Pendant Screen CC or CV mode”. This setting must match the DC Power Supply being used.

1. Select the CC or CV mode setting. To set the CC or CV mode;

   a. Press the “OK” [OK] button on the Pendant. Once pressed, the CC or CV letters will begin blinking.

   b. Rotate the Rotary Dial to switch between CC or CV modes. The screen displays as follows:

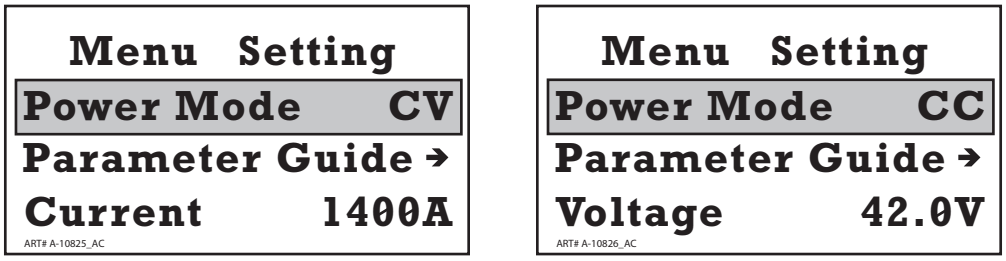

Figure 5-4: Default Pendant Screen CC or CV mode

   c. Press the “OK” [OK] button on the Pendant. The CC or CV choice displayed on the screen is entered.

NOTE

If the “OK” button is not pressed within one minute, the blinking will stop and the mode will be whatever is shown.

2. Using the down “Mode Selector” button move the cursor to highlight “Parameter Guide” and press the “OK” [OK] button. See “Figure 5-6: Parameter Guide Screen”.

3. There are 2 Parameter Guide settings based on the work performed. Use the “Mode Selector” or buttons to scroll up or down the choices. Press the “OK” [OK] button and use the dial to select a value for any of these settings. Use the “Mode Selector” button again to exit a setting choice. The displayed setting value is accepted when you move to another setting.

Unit - (of measurement) Inches or Millimeters

Diameter - Electrode diameter. Available settings are listed in the Parameter Table.

Depth - Gouging depth. Available settings (based on the electrode diameter) are listed in the Parameter Table.

Current - Defaults based on the recommended operating current.

Travel Speed - Travel Speed output provides a starting point to set the travel speed to obtain the gouge depth selected. Adjust by resetting parameter variables accordingly once the gouging process is started as needed. **Remember that the slower the travel speed the deeper the gouge and vice versa.**

Electrode Diameter		Gouge Depth		Current	Travel speed/min	
INCH	MM	INCH	MM	AMPS	INCH	MM
5/16	7.9	1/8	3.2	400	65.0	1651
5/16	7.9	3/16	4.8	400	45.0	1143
5/16	7.9	1/4	6.4	450	36.0	914
5/16	7.9	5/16	7.9	450	33.0	838
5/16	7.9	7/16	11.1	450	22.5	572
3/8	9.5	1/8	3.2	500	70.0	1778
3/8	9.5	3/16	4.8	500	44.0	1118
3/8	9.5	1/4	6.4	500	35.0	889
3/8	9.5	3/8	9.5	500	20.0	508
3/8	9.5	9/16	14.3	500	17.5	445
1/2	12.7	1/8	3.2	850	96.0	2438
1/2	12.7	1/4	6.4	850	57.0	1448
1/2	12.7	3/8	9.5	850	35.0	889
1/2	12.7	1/2	12.7	850	24.0	610
1/2	12.7	3/4	19.1	850	17.5	445
5/8	15.9	1/4	6.4	1250	72.0	1829
5/8	15.9	3/8	9.5	1250	48.0	1219
5/8	15.9	1/2	12.7	1250	37.0	940
5/8	15.9	5/8	15.9	1250	30.0	762
5/8	15.9	15/16	23.8	1250	19.5	495
3/4	19.1	1/4	6.4	1400	72.0	1829
3/4	19.1	3/8	9.5	1400	42.0	1067
3/4	19.1	1/2	12.7	1400	34.0	864
3/4	19.1	5/8	15.9	1400	27.0	686
3/4	19.1	3/4	19.1	1400	22.0	559
3/4	19.1	1 1/8	28.6	1400	13.0	330

Table 5-5: Parameter Table

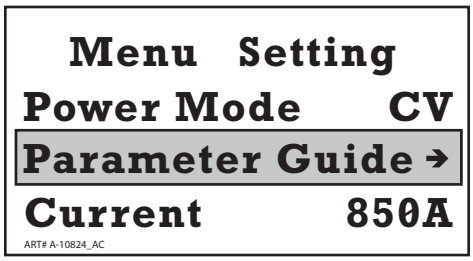

Figure 5-6: Parameter Guide Screen (using CV mode)

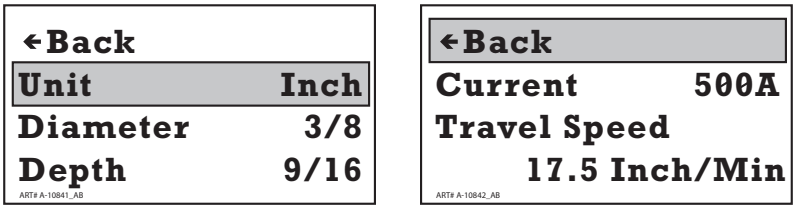

Figure 5-7: Parameter Guide Setting Examples

4. Press the "OK" OK button to exit the Parameter Guide choices.
5. Set the DC Power Supply to obtain the recommended current as noted in the Parameter Guide. Set the travel speed to the recommended speed per the Parameter Guide.
6. Use the up or down "Mode Selector" ✋ or ☝ buttons to scroll to "<- Back" and press the "OK" OK button. You are returned to the main screen highlighting "Parameter Guide".
7. Use the up or down "Mode Selector" ✋ or ☝ buttons to scroll to Current and press the "OK" OK button. See "Figure 5-8: Current Setting Examples".

   When operating in the "CC" mode, set "Voltage" at any point between 40 - 44 Volts. The Remote Pendant is set at 42 Volts from the factory.

   When working in the "CV" mode, set the "Current".

   CV EXAMPLE:

   Electrode Diameter = 1/2" (12.7 mm)

   Amperage Required = 850

   "OUTPUT LEVEL" setting = 850

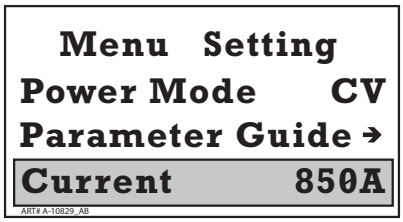

Figure 5-8: Current Setting Example

8. Use the potentiometer dial ◎ to obtain the correct "Current" setting required when using CV mode.

   Press the "OK" OK button to set the Current value.

9. Use the up or down "Mode Selector" or buttons to scroll to "Travel Delay." See "Figure 5-9: Travel Delay Screen."

   Press the "OK" button and rotate the potentiometer dial to adjust the time delay for any time length between 0 and 6.0 seconds.

   Press the "OK" button to set the Travel Delay time setting.

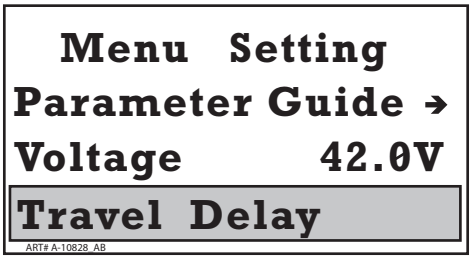

Figure 5-9: Travel Delay Screen

Travel Delay Setting			
Approximate Setting	Electrode Size	Target Depth	
		Inches	mm
0.0	5⁄16" (7.9 mm) through 3/4" (19.05 mm)	1⁄8	3.2
0.5	5⁄16" (7.9 mm) through 3/4" (19.05 mm)	1⁄4	6.4
1.0	5⁄16" (7.9 mm) through 3/4" (19.05 mm)	5⁄16	7.9
1.5	3⁄8" (9.53 mm) through 3/4" (19.05 mm)	3⁄8	9.5
2.0	1/2" (12.7 mm), 5⁄8" (15.88 mm), 3/4" (19.05 mm)	1⁄2	12.7
2.5	5⁄8" (15.88 mm), 3/4" (19.05 mm)	5⁄8	15.9
3.0	3/4" (19.05 mm)	11⁄16	17.5
3.5	3/4" (19.05 mm)	3⁄4	19.0
4.0	3/4" (19.05 mm)	7⁄8	22.2

Table 5-10: Travel Delay Setting

10. Use the up or down "Mode Selector" or buttons to scroll to "No Current Detect". See "Figure 5-11: No Current Detect screens".

    The N7500 System contains a "No-Current Detect" circuit. This circuit monitors Arc Current. Should the arc increase or decrease outside set limits or the arc stop, the "No-Current Detect" circuit will **shut down** the gouging sequence. "Normal" mode is preset from the factory.

    This program can be set for one of three response levels:

    NORMAL - Setting provides 0.4 second System shutdown delay.

    SPECIAL - Setting provides 0.8 second System shutdown delay.

    OFF - System continues to operate regardless of Arc Current level. System shutdown is manually controlled.

Set the "No Current Detect" option as needed. To change the setting press the "OK" button and using the Potentiometer knob select the setting that meets your needs.

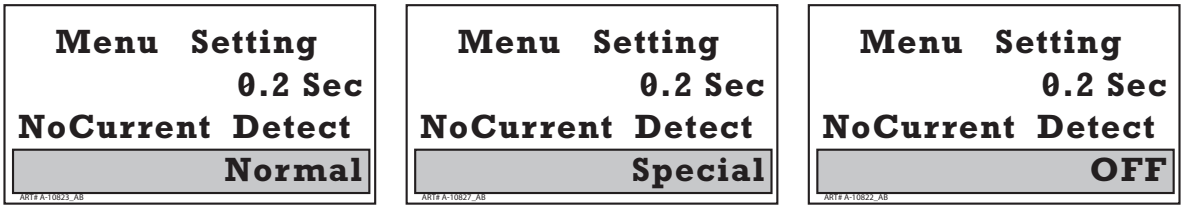

Figure 5-11: No Current Detect screens

Press the "OK" button again to retain the setting chosen.

11. Turn ON the compressed air.
12. Turn ON the Power Supply.
13. Press the "Start" button.

    The DC Power Supply contactor closes and the electrode will feed down to the work piece. The air solenoid inside the Control Box will open to release compressed air to the Torch Head air nozzle. An arc will be struck as soon as the tip of the electrode reaches the work piece. The proper arc gap will be maintained, even while the electrode feeds downward. Once the electrode reaches the target depth, the travel system will be energized.

NOTE

If a short out interrupts the operation; check the air nozzle and the electrode guide block in the Torch Head for signs of arcing. If arcing is evident make appropriate repairs. If NO signs of arcing are present, retry starting the gouge procedure by pressing the "Start" button on the Pendant.

WARNING

Wear protective gear and be sure the work area is clear. The system is ready to begin gouging. If the unit is attached to a travel system, be sure the travel system is ready to operate. Stand clear of the Torch Head.

CAUTION

If the unit doesn't respond, turn OFF the Power Supply and Control Box power. Refer to the Troubleshooting Guide.

14. To adjust arc voltage while operating in "CC" mode, push down on the rotary dial while turning clockwise to increase or counterclockwise to decrease the arc voltage under load. Range of adjustment is +/- 5 volts from initial arc voltage value shown on the Remote Pendant before pressing the "Start" button. If the gouging is stopped for any reason, the arc voltage value displayed at that point will be the new value that can be increased or decreased by 5 volts.

    To adjust current while operating in "CV" mode, push down on the potentiometer dial while turning clockwise to increase or counterclockwise to decrease the current under load. Range of adjustment is +/- 100 amperes from initial current value shown on the Remote Pendant before pressing the "Start" button. If the gouging is stopped for any reason, the current value displayed at that point will become the new value that can be increased or decreased by 100 amperes.

Gouging operations can be stopped using the Remote Pendant controls.

15. Press the "STOP"

button and the electrode will retract, compressed air stops flowing through to the Torch Head, and the DC power supply contactor opens.

    If you press the "Start"

button again the N7500 will resume operations again in the same mode settings.

NOTE

LOW VOLTAGE SHUTDOWN can occur when the DC voltage supplied to the N7500 System drop below 28 volts. This feature protects the system from serious damage. If this occurs determine the cause of the voltage drop, take corrective action and restart the system.

SECTION 6:
N7500 SYSTEM USES

6.01 SYSTEM USES

This section briefly describes some uses for the N7500 System. If you have any questions concerning a specific application for this system contact Victor Technologies Technical Services Department at 800-426-1888 or 940-566-2000.

GOUGING NON-FERROUS METALS

The N7500 System can be connected to DC Straight Polarity (DCEN) to gouge non-ferrous metals, such as nickel, copper alloys, etc. "Figure 6-1: N7500 DC Straight Polarity (DCEN)" shows the proper connections for the system to run on DC Straight Polarity.

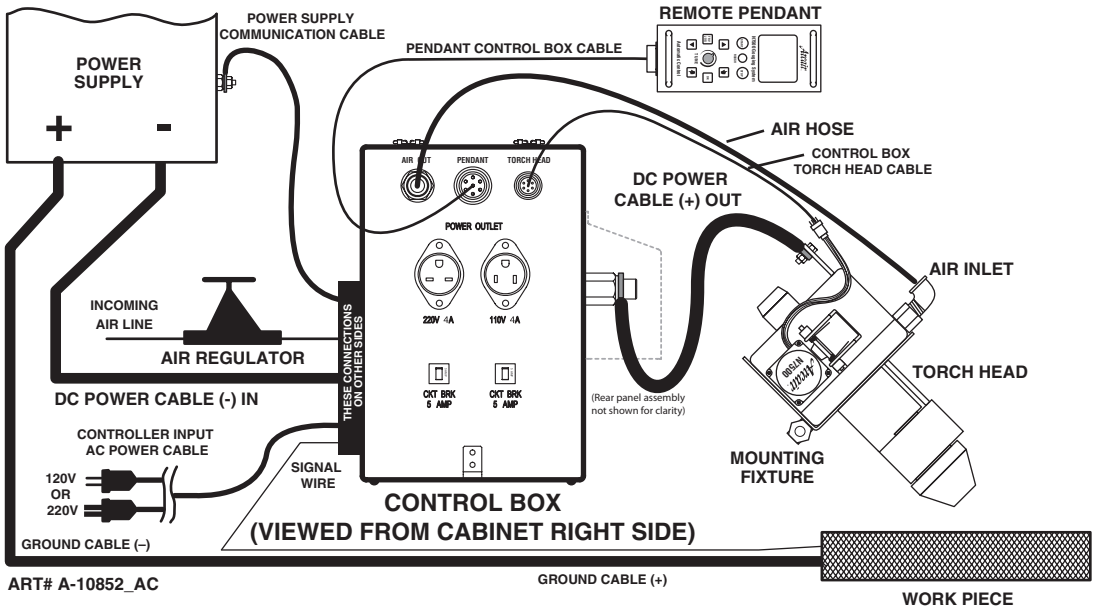

Figure 6-1: N7500 DC Straight Polarity (DCEN)

NOTE

Use standard #12 insulated copper wire as your signal wire. It must be long enough to prevent stress on the Contactor connection.

6.02 Zero Force Rough Machining

The N7500 system can work with an automated travel system to remove hardsurfacing material from steel mill rolls; kiln rolls and shafts which needs re-working. Remove as much as 1-1/2" (3.81 cm) of old material from the outside diameter in a single pass and as little as 1/8" (3.18 cm) for the finish pass.

OSCILLATION GOUGING TO REMOVE MATERIAL

The N7500 can be mounted on a welding oscillator to remove material. Normal uses for an oscillated gouge would be to remove cladded material from plates requiring a beveled edge and to remove backup bars and excessive weld crowns.

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SECTION 7: MAINTENANCE

7.01 Introduction

If this equipment **does not** operate properly, **stop work immediately** and investigate the cause of the malfunction. Maintenance work must be performed by an experienced, qualified person only. Any electrical work must be performed by an electrician or other person properly trained in servicing electrical equipment. **Do not** permit untrained persons to inspect, clean or repair this equipment. Use only recommended replacement parts when servicing this machine.

WARNING

Danger: HIGH VOLTAGE may be present internally even with the Control Box power switch in the OFF position. Before inspecting, cleaning, or servicing, disconnect and lock out the input power from the Mains.

Warning!
Disconnect input power before maintaining.

Maintain more often if used under severe conditions

Each Use

Visual check of regulator and pressure

Visual check of Remote Pendant

Visual check of Torch Head

3 Months

Replace all broken parts

Air lines

Clean exterior of Torch Head

Clean exterior of Control Box

6 Months

Visually check and use a vacuum to carefully clean the interior

Clean interior of Nozzle and Torch Head

Art # A-10847_AB

Figure 7-1: Maintenance

The following checklist can be used as a guide for routine maintenance.

- Check warning labels for readability.
- Check sheet metal panels, plates, and covers on the Control Box, Remote Pendant, and Torch Head. All screws, fasteners, and connectors should be firmly secured. Heavily corroded or damaged panels, damaged fasteners or connectors should be replaced.
- Check all wiring and hoses to the Control Box, Remote Pendant, and Torch Head. Repair or replace any wires, cables, or hoses that have cracked or damaged insulation or frayed connections.
- Check Control Box internal connections including circuit board connectors. Any loose or corroded connections should be repaired.
- Check any connections to travelers, fixtures, etc.
- Check all Control Box switches and controls. Damaged or broken switches or controls should be replaced.
- Check Remote Pendant control panel surface, bumper, connector, and controls. Cracked, torn, or peeling Remote Pendant control panel surface should be replaced. If any of the control buttons or rotary dial are inoperable the Remote Pendant should be replaced. If the rotary dial knob is broken, missing, or malfunctioning the rotary dial knob should be replaced.
- Check Torch Head nozzle, air plenum housing, shield, motor, busbar connection, and motor cable. Heavily corroded or damaged nozzle, air plenum housing, or shield should be replaced.
- Check and log N7500 Arctime hours using the Remote Pendant.

7.02 Remote Pendant ARCTIME

Arctime will show the N7500 arctime when the unit is turned ON. This display will update as the N7500 is used.

1. Position the power switch located on the side of the Control Box labeled “POWER OFF” & “POWER ON” to the “ON” position. Notice the electrode will retract for several seconds and stop.
2. The Mode Indicator Display on the Remote Pendant will light up on the “Menu Setting” (Default display whenever the unit is powered up).
3. Using the down “Mode Selector” button move the cursor to highlight “Arctime” and press the “OK” button.

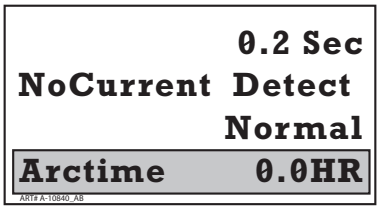

Figure 7-2: Arctime Screen

4. Log the Arctime hours and the date the reading was taken onto a log sheet for your maintenance record.

SECTION 8: TROUBLESHOOTING GUIDE

8.01 Arcair-Matic N7500 Gouging System

In all troubleshooting cases turn power OFF before performing work on the system unless otherwise directed to do so.

CAUTION

Use appropriate Lock OUT and tag OUT measures when working with electrical equipment or electrical components.

8.02 N7500 General

General		
Problem	**Possible Cause**	**Possible Remedy**
Torch Head nozzle melting	Low air pressure at nozzle	Increase air regulator pressure.
		Dismantle Torch Head nozzle, clean and reassemble.
		Check Air Solenoid Valve.
No power	Power Supply not turned ON	Turn ON Power Supply.
	AC Power Cable not connected to N7500	Check AC Power Cable connection.
	N7500 Control Box ON/OFF switch not turned ON	Turn ON N7500.
	Power Supply wiring not correct	Check wiring connections to Power Supply. Refer to "Figure 4-10: Power Supply Comm. Cable Pin Configuration" on page 4-5 for recommended control wiring.
	DC Power Cables not connected or improperly connected	Check DC Power Cable connections. NOTE: Connections must be wrench tight.
No operation with power supplied to Remote Pendant	DC Power Cable size too small	Refer to "Table 3-13: Power Cable Requirements" on page 3-10
	No low current	
	No ground	Check ground wire, ground wire connections, work piece clamp, Power Supply DC Power Cables and wiring connections to Power Supply.
	Incorrect control wiring to Power Supply or from AC Power	Review "Table 4-11: Standard Wiring Connections" on page 4-6.
		Review "4.04 Control Box Installation" on page 4-4.
	Programming on Remote Pendant incomplete	Complete Pendant programming. Refer to "5.04 Remote Pendant Programming" on page 5-3.
	Incomplete, loose, or broken connector	Check all N7500 connections. Repair or replace.
	Signal Wire not connected	Connect Signal Wire.
N7500 starts operation but Torch Head does not begin traveling or delays start of travel	Travel Delay improperly set	Review "Table 5-10: Travel Delay Setting" on page 5-6 and reprogram as necessary.
	Traveler controls improperly set	Review connections from Control Box to Traveler.
		Confirm Traveler is ON. Review the Traveler's Owner / Operation manual and correct.

General		
Problem	**Possible Cause**	**Possible Remedy**
N7500 starts operation but Torch Head stops	Low voltage shutdown	DC voltage has dropped below 28 volts. Determine cause of voltage drop, take corrective action, and restart the system.
Electrical Arc at Power supply, Control Box or Torch Head Buss Bar	Improper wiring connections	Confirm proper wiring, check for damage to components, repair or replace.

Table 8-1: General Troubleshooting

8.03 Torch Head

PIN #	WIRE COLOR
A	EMPTY
B	RED
C	BLACK
D	EMPTY
E	GREEN
F	BLUE

Table 8-2: Torch Head Motor 6 PIN Wire Schedule

Torch Head		
Problem	**Possible Cause**	**Possible Remedy**
No air or little air from Torch Head nozzle	See "No air flow through Control Box when system is activated" in Control Box Troubleshooting	
	Shop air issue	Check Shop air.
	Control Box to Torch Head air line kinked	Remove kink in air line.
	Ports in Torch Head nozzle are clogged	Clean slag from Torch Head nozzle.
	White nozzle insulator ring on air nozzle missing or destroyed	Replace with new nozzle insulator ring. See Item number "27" in "Table 9-4: Torch Head PARTS" on page 9-2.
Electrode does not feed through Torch Head	Torch Head motor not operating	See "8.04 Remote Pendant" Troubleshooting section.
		Check Motor cable connectors. Repair or replace cable. See "SYSTEM CABLES" on page 9-4.
		Check Motor. See "Figure 9-3: Torch Head PARTS" on page 9-2.
	Joint separated or Electrode stub jammed inside housing	Realign electrodes or replace damaged electrode.
		Shut N7500 down, disconnect Torch Head from Control Box, open housing cover plate and remove electrode. See "Figure 9-3: Torch Head PARTS" on page 9-2.
	Electrode release lever jammed open	Remove electrode(s) from Torch Head, inspect release lever, repair or replace. See "Figure 9-3: Torch Head PARTS" on page 9-2.

Torch Head		
Problem	**Possible Cause**	**Possible Remedy**
Air leaking from Air Plenum Housing	O-rings on Air Plenum supply tube worn	Check air tube o-rings, replace if necessary.
	Top assembly of Air Plenum Housing not fastened securely to lower Air Plenum Housing	Tighten screws on Plenum.
	Top assembly of Air Plenum Housing is distorted from excessive heat	Replace.
Busbar corrosion, arcing, overheating, or screws loose inside head	Cable connections are NOT wrench tight	Tighten busbar leads connection wrench tight.
Electrode short out	DC Voltage setting is incorrect	Adjust DC voltage to 40 to 44 DC Volts.
	Current set too low for electrode being used	Adjust DC current.
	Arc out on air nozzle or the electrode guide block	If NO signs of arcing are present, retry starting the gouge procedure by pressing the “Start” button on the Pendant. If signs of arcing are present, repair or replace components. See "Figure 9-3: Torch Head PARTS" on page 9-2.
Electrode retracts during normal operation	Power supply and N7500 not on same CC/CV setting	Reset both to the same CC or CV setting.
	DC Voltage setting is incorrect	Adjust DC voltage to 40 to 44 volts.
	STOP button pushed	Press START button.
Electrode does not retract	Torch Head motor not working	Check Torch Head motor and cable. Repair or replace.
	Joint separated	Realign electrodes or replace damaged electrode.
	or Electrode stub jammed inside housing	Shut N7500 down, disconnect Torch Head from Control Box, open housing cover plate and remove electrode. See "Figure 9-3: Torch Head PARTS" on page 9-2.
Electrode does not retract and reposition itself at start up	Torch Head Motor Cable not attached or improperly attached	Attach motor cable.
Electrode does not arc	No or low current	Check the Power Supply current output. Adjust the Power Supply output current to match the rated current for the Electrode size. Refer to "Table 5-5: Parameter Table" on page 5-4.

Table 8-3: Torch Head Troubleshooting

8.04 Remote Pendant

PENDANT CABLE		
PIN	**COLOR**	**LOCATION**
A	WHT (#1)	PIN A
B	BK (#1)	PIN B
C	BK (#2)	PIN C
D	NOT USED	PIN D
E	WHT (no #)	PIN E
F	WHT (#2)	PIN F
G	NOT USED	PIN G

Table 8-4: Pendant Cable Pin Identification

Remote Pendant		
Problem	**Possible Cause**	**Possible Remedy**
Remote Pendant has no power	Pendant Cable not attached	Attach Pendant Cable.
	Absence of appropriate power	Check power to Control Box.
	Tripped ON/OFF Switch circuit breaker	Turn power OFF, check for and repair fault.
	Break in cable which links Control Box to Remote Pendant	Check cable connections. Repair/replace cable.
	Defective Remote Pendant	Replace Remote Pendant.
No Remote Pendant display	Pendant Cable not attached	Attach Pendant Cable.
	Power to Remote Pendant is OFF	Check cable connections. Repair/replace cable.
	Defective Remote Pendant	Replace Remote Pendant.
Rotary Dial does not work	Power to Remote Pendant is OFF	Check cable connections. Repair/replace cable.
	Rotary Dial is loose	Tighten set screw on Rotary Dial.
"No-Current Detect" shut down	No Current Detect setting is OFF	Change Remote Pendant No Current Detect programming to 'Normal' or 'Special'. See page 5-7 for instructions.
	Power supply and N7500 not on same CC/CV setting	Reset both to the same CC or CV setting.
	Arc Current not reporting	Check signal wire for continuity, min wire size, clamp and connections at work piece and Control Box.
Mode Selector button(s) on Pendant do not respond to touch	Defective Remote Pendant	Replace Remote Pendant.

Table 8-5: Remote Pendant Troubleshooting

8.05 Control Box

Control Box		
Problem	**Possible Cause**	**Possible Remedy**
No AC power to Control Box	110/220VAC power to Control Box NOT turned ON	Check connections and turn power ON. See "Table 3-2: Control Box Features" on page 3-2.
	Disconnected AC Power Cable	Connect AC Power cable
	Defective AC Power cable	Repair/replace cable. See "9.04 110V Power Supply Cable Assembly" on page 9-4.
	Tripped ON/OFF Switch circuit breaker	Turn AC power OFF, check for and repair fault, then reset.
No DC "+" power to Control Box	Power Supply Comm Cable not connected or improperly connected	Connect Power Supply Comm Cable to Power Supply.
		Review "Table 4-11: Standard Wiring Connections" on page 4-6 and "Figure 4-10: Power Supply Comm. Cable Pin Configuration" on page 4-5 for proper wiring points.
No output from Travel System Power Connection on Control Box	Circuit breaker tripped	Check for and repair fault. Reset. See "Table 3-2: Control Box Features" on page 3-2.
	Defective power cable	Check for fault. Repair or replace cable.
	Defective power outlet on Control Box	Replace outlet. See "Figure 9-1: Control Box PARTS" on page 9-1.
No air flow through Control Box when system is activated	Shop compressed air is OFF, regulator is closed or improperly adjusted	Check shop air, check regulator at Control Box Air In inlet. Turn shop air ON and adjust regulator to operating psi. ⚠ ***WARNING*** *Do not exceed N7500 system max air pressure.*
	Air solenoid is faulty	Replace air solenoid. See "Figure 9-1: Control Box PARTS" on page 9-1.
Power Supply In/Out Busbars corroded, arcing, overheating	DC cable connection is NOT wrench tight	Tighten busbar connection wrench tight.

Table 8-6: Control Box Troubleshooting

AC POWER SUPPLY CABLE		
PIN	**COLOR**	**VOLTAGE**
A	WHT	NEUTRAL
B	GN	GROUND
C	BK	LINE

Table 8-7: AC Power Supply Cable Pin Identification

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SECTION 9: REPLACEMENT PARTS

9.01 Control Box Replacement Parts

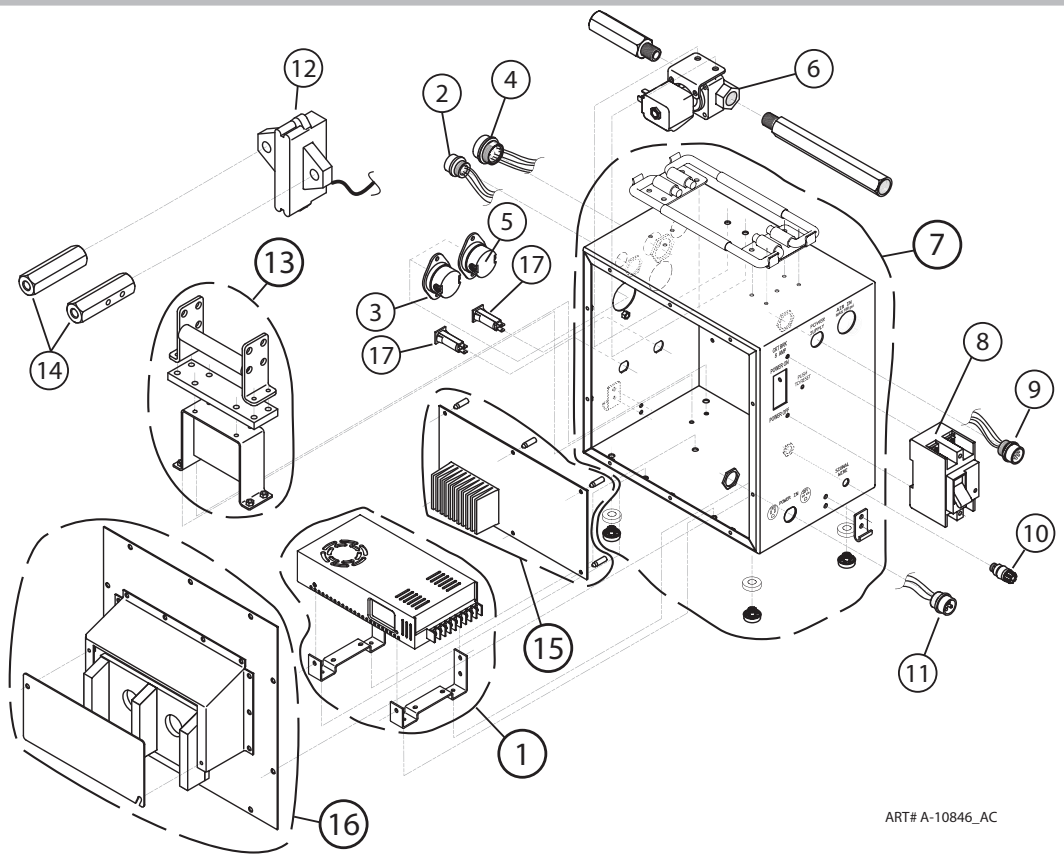

Figure 9-1: Control Box PARTS

Item No.	Qty	Part Number	Description
1	1	96-881-091	Power Supply With Brackets
2	1	96-169-334	Torch Head Connector
3	1	96-169-069	AC Power Receptacle - 110 VAC
4	1	96-169-337	Remote Pendant Connector
5	1	96-169-070	AC Power Receptacle - 220VAC
6	1	96-921-005	Solenoid Valve
7	1	96-174-079	Control Box Base - w/Handles
8	1	96-110-007	Circuit Breaker
9	1	96-169-333	Power Supply Communication Connector
10	1	96-644-007	Signal Wire Connector
11	1	96-169-332	AC Power Supply Connector
12	1	96-698-038	Current Sensor
13	1	94-111-046	Electrical Plate Bracket Assy
14	2	94-013-092	Poles
15	1	96-162-738	Main PCBA w/Standoffs
16	1	96-174-069	Rear Panel Assembly w/Cover
17	2	96-110-010	Circuit Breaker - 5 Amp

Table 9-2: Control Box PARTS

9.02 Torch Head Replacement Parts

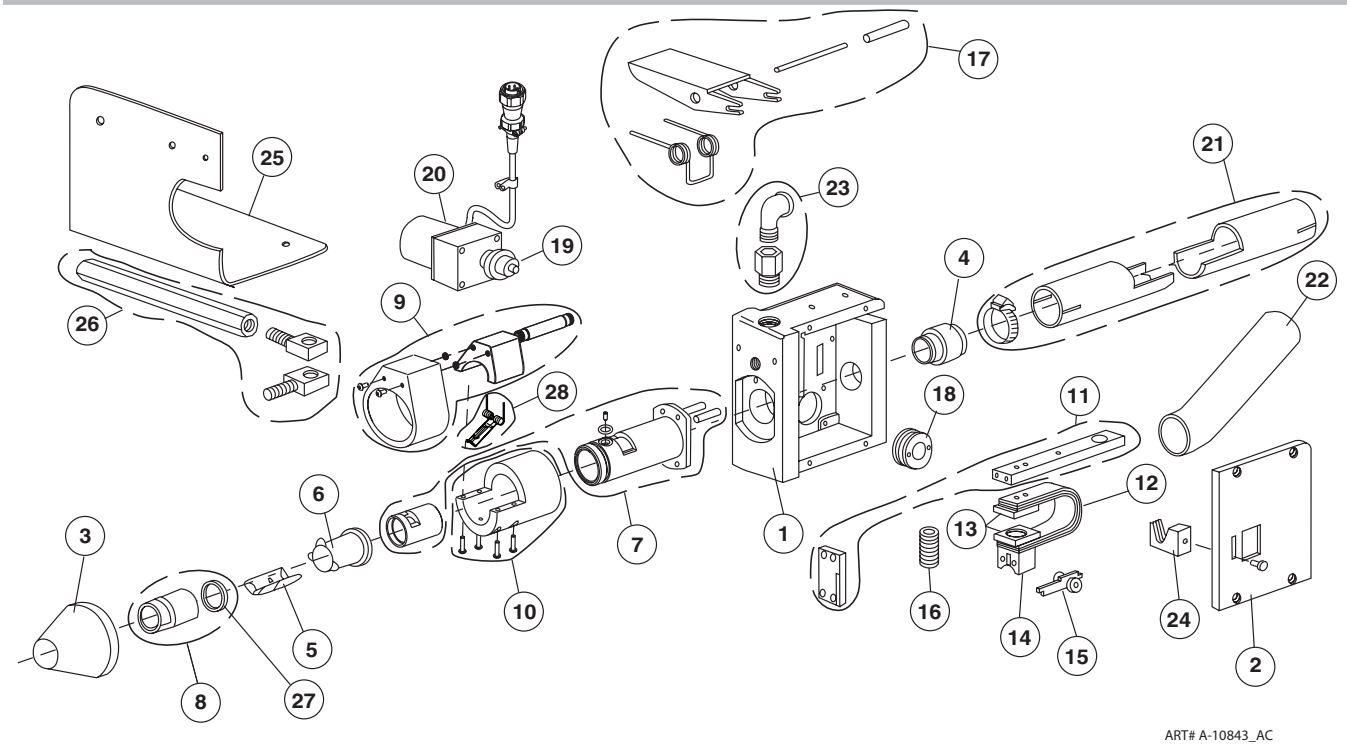

Figure 9-3: Torch Head PARTS

Item	Part Number	Description
	05-124-001	N7500 Torch Head
1	94-395-106	Torch Housing
2	94-171-278	Cover
3	94-565-092	Locknut
4	94-013-098	Electrode Tube Adapter
5	94-096-132	Vee Block
6	94-784-076	Nozzle Sleeve
7	94-636-002	Extended Plenum
8	94-556-071	Air Nozzle w/Insulator
9	94-395-107	Air Inlet Housing Assembly
10	94-433-190	Extension Insulator
11	96-070-029	Bus Bars
12	96-458-025	Tinned Flat Copper Braid
13	96-168-028	Jumper Clamp
14	96-774-095	Shoe

Item	Part Number	Description
15	94-949-053	Wheel Assembly
	94-079-008	Beam & Pin
	94-949-052	Wheel (2 Required)
16	94-800-184	Shoe Spring
17	94-476-067	Clamping Lever
18	94-949-051	Drive Wheel
19	94-433-184	Insulator
20	96-524-100	Drive Motor & Gear Housing
21	94-893-082	Electrode Holder Tube
22	94-105-016	Cable Boot
23	94-306-151	Air Inlet Fittings
24	94-096-133	Guide Block
25	94-777-105	Shield
26	94-079-013	Mounting Beam Components
27	94-433-189	Nozzle Insulator
28	94-800-186	Nozzle Spring and Guard

Table 9-4: Torch Head PARTS

9.03 Remote Pendant Replacement Parts

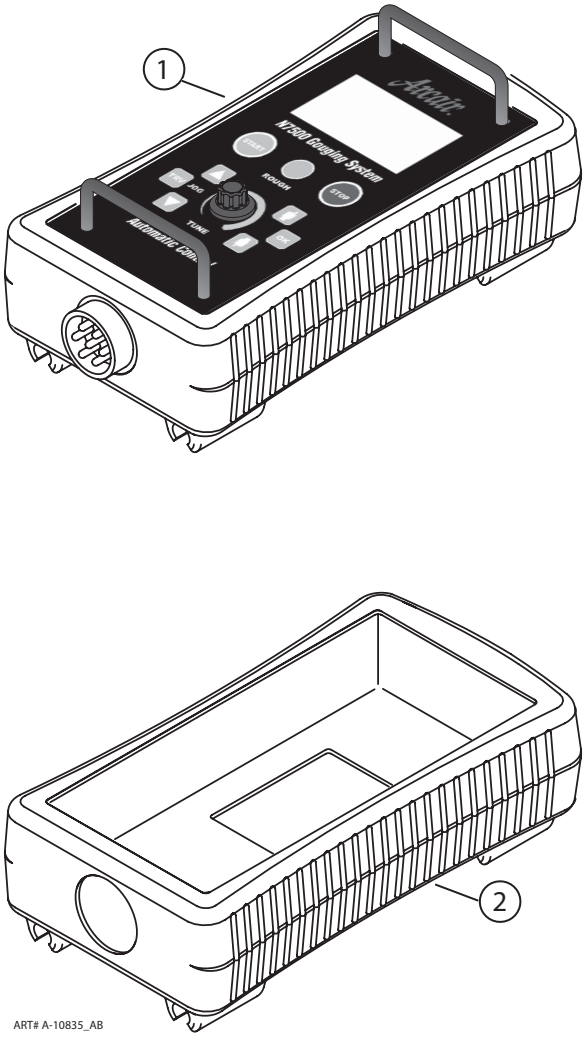

Figure 9-5: Remote Pendant PARTS

Item No.	Qty	Part Number	Description
1	1	72-008-020	Remote Pendant (with bumper guard)
2	1	94-105-030	Rubber Bumper Guard

Table 9-6: Remote Pendant PARTS

SYSTEM CABLES

9.04 110V Power Supply Cable Assembly

Part No.	Description	Application
96-130-304	10 ft. (3m) length	For the Control Box Power Supply IN

9.05 220V Power Supply Cable Assembly

Part No.	Description	Application
96-130-305	10 ft. (3m) length	For the Control Box Power Supply IN

9.06 Pendant Cable Assembly

Part No.	Description	Application
96-170-069	14 inches (0.36m) length	Connects the Control Box to the Pendant
96-170-070	15 ft. (5m) length	
96-170-071	25 ft. (8m) length	
96-170-072	50 ft. (15m) length	

9.07 Motor Cable Assembly

Part No.	Description	Application
96-130-335	3 ft. (0.9m) length	Connects the Control Box to the Torch Head motor
96-130-336	15 ft. (5m) length	
96-130-337	25 ft. (8m) length	
96-130-338	50 ft. (15m) length	

9.08 Power Supply Communication Cable Assembly

Part No.	Description	Application
96-130-339	15ft. (5m) length	Connects the Control Box to the Power Supply
96-130-340	25ft. (8m) length	
96-130-341	50ft. (15m) length	

9.09 Power Cables

Part No.	Description	Application
96-130-254	4ft. (1.22M) Length	Connects the Torch Head to the Control Box buss bar
96-130-256	15ft. (5M) Length	
96-130-300	25ft. (7.62M) Length	

NOTE: Minimum 2 Power Cables Required

9.10 Air Hose Assembly

Part No.	Description	Application
94-396-051	4ft. (1.22M) Length	Supplies compressed air from the Control Box to the Torch Head
94-396-049	15ft. (5M) Length	
94-396-048	25ft. (7.62M) Length	

SECTION 10:
APPENDIX

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10.01 Wiring Schematic

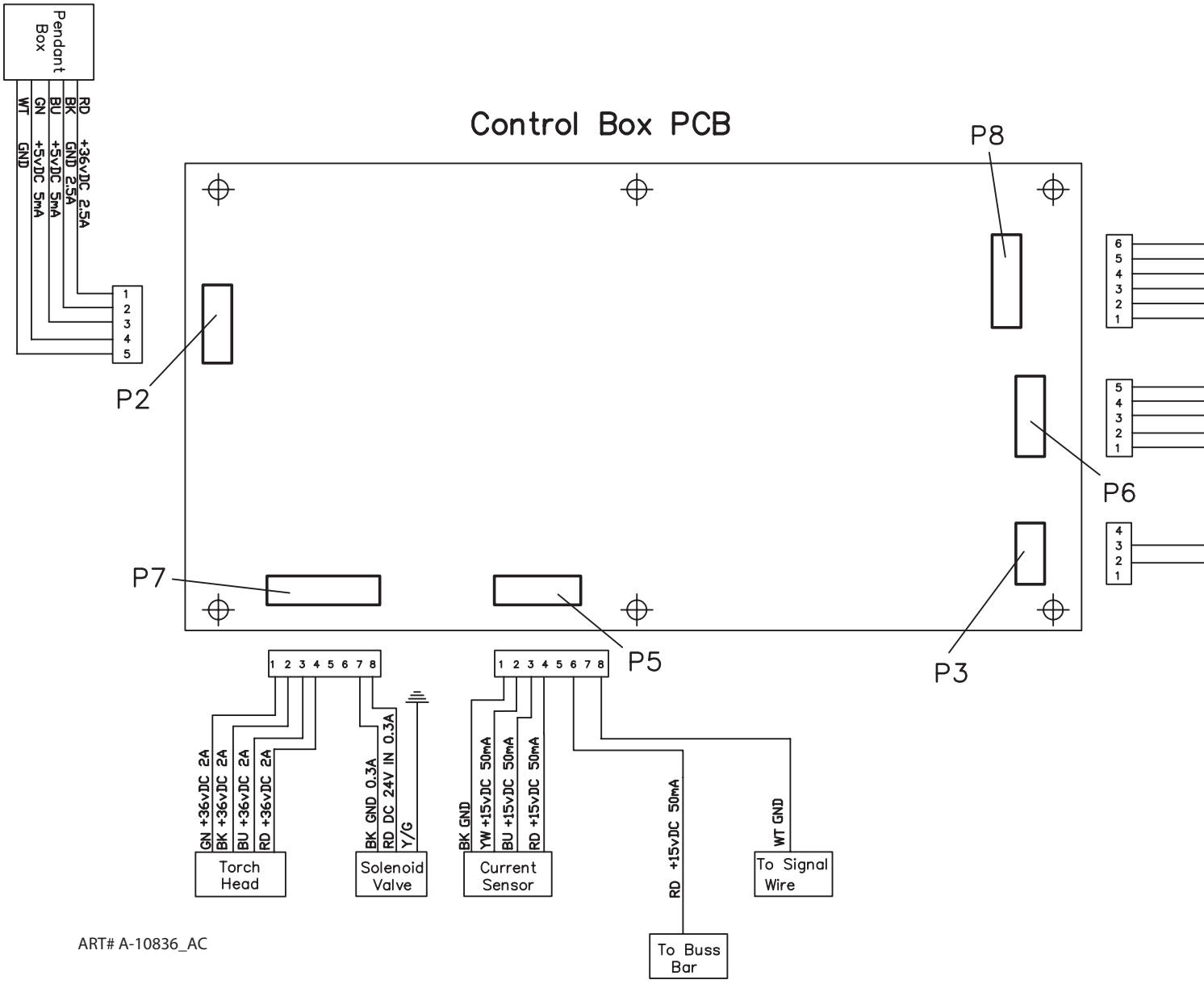
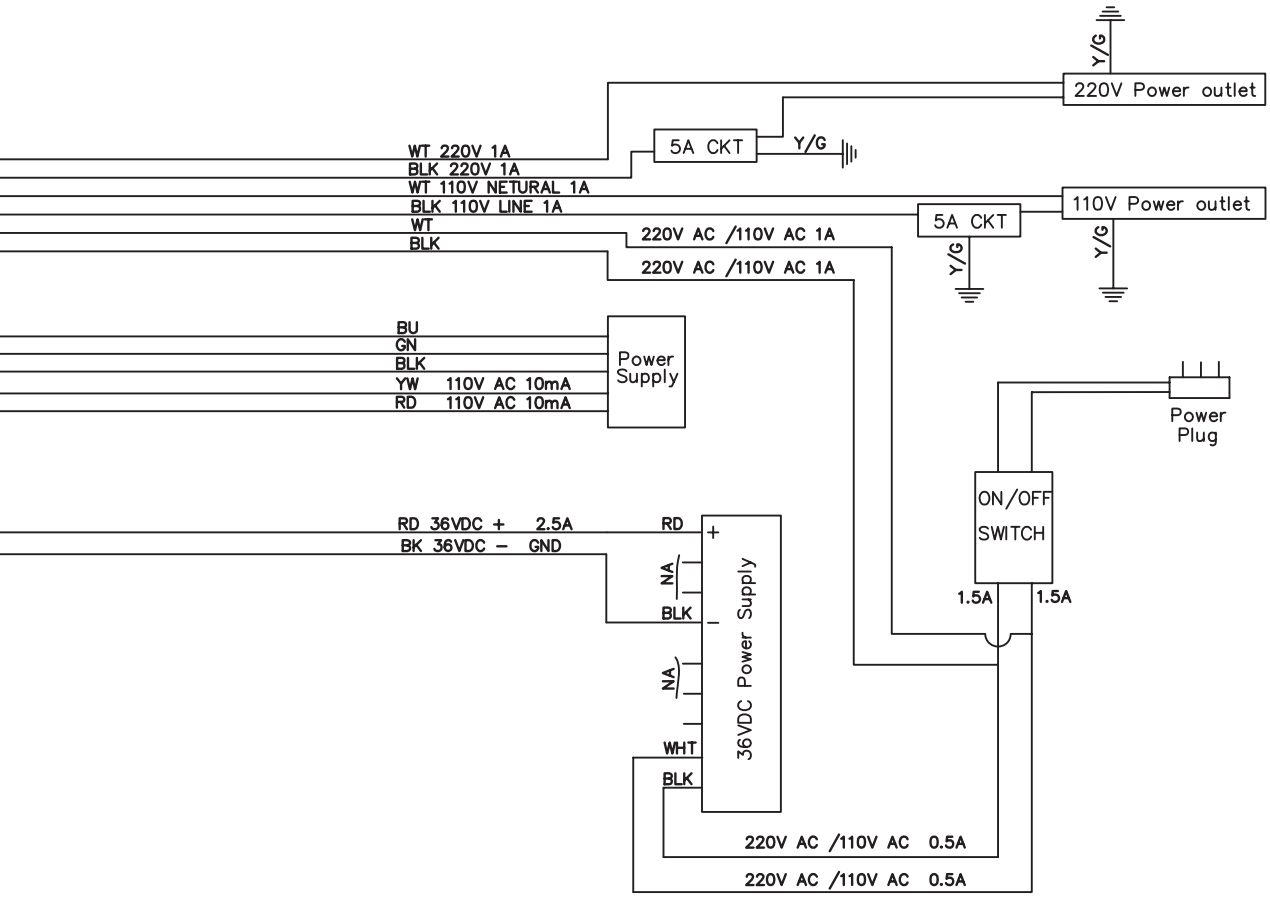


Figure 10-1: N7500 Wiring Schematic


Y/G
220V Power outlet
5A CKT
Y/G
WT 220V 1A
BLK 220V 1A
WT 110V NETURAL 1A
BLK 110V LINE 1A
WT
BLK
110V Power outlet
5A CKT
220V AC /110V AC 1A
220V AC /110V AC 1A
Y/G
Y/G
BU
GN
BLK
YW 110V AC 10mA
RD 110V AC 10mA
Power Supply
Power Plug
ON/OFF SWITCH
1.5A
1.5A
RD 36VDC + 2.5A
BK 36VDC – GND
RD
+
NA
BLK
–
NA
WHT
BLK
36VDC Power Supply
220V AC /110V AC 0.5A
220V AC /110V AC 0.5A

PUBLICATION HISTORY

Manual No. 89250890

Cover Date	Rev	Change(s)
Jan, 2012	AA	First issue
Mar, 2012	AB	Added UL logo, changed duty cycle rating from 1600A to 1500A, changed Motor Cable from 5 pin to 6 pin and Power Supply Communication cable from 7 pin to 6 pin.
April, 2012	AC	Updated wiring pin colors in Table 8-2: Torch Head Motor 6 PIN Wire Schedule, changed duty cycle rating from 1500A to 1600A, converted all images to greyscale.
June, 2012	AD	Corrected text and drawings on pages 2-2, 3-6, 3-10, 5-3 and 5-5. Changed Thermadyne to Victor Technologies International, Inc.
Aug, 2013	AE	Updated photos on pages 3-1, 4-1, and 4-3. Changed Arcair to Victor Arcair. Corrected text on page 4-4. Updated drawing on page 4-5. Updated tables in Section 8. Corrected drawing and table on page 9-2. Updated Wiring Schematic on page A-2. Updated text on page 2.
Feb. 2014	AF	Rebranded. Added new step om page 5-7.

NOTE

**Victor Arcair uses the date on the manual cover to indicate the most recent revision of the manual.*

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Effective 08/01/2011
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Tweco Arcair

1 year parts and Labor Unless specified
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TC and TCV Water Coolers (No Labor)
TSC-96 Smoke Collector (No Labor)
ESG-1, EPG-CR1, CR2 Control
Boxes for Spool & Pull Guns (No Labor)
Professional Eliminator® Spool Guns (No Labor)
Arcair® N7500 (No Labor)

180 days parts / No Labor
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90 days parts and Labor Unless specified
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QRM-1 and QRM-2 Anti-Spatter Applicator

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5 Years Parts / No Labor
Victor® Slimlite Medical
Victor® Professional

3 Years Parts / No Labor
TurboTorch®

2 Years Parts / No Labor
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HP&I Brass regulators/manifolds
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HP&I Stainless regulators/manifolds
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CutMaster TRUE

2 Years Parts / 1 Year Labor
DragGun Plus, PAK 200, PAK 45
AutoCut and UltraCut

1 Year Parts and Labor Unless specified
AirCut 15, CutSkill® units,
Water recirculators
Stand Off Controls, Remote Controls, other Consols
1Torch, Surelok, XT300 / XT301 and Maximizer torches

180 days parts and Labor Unless specified
All other "Torch and Leads" Packages

90 days parts / No Labor
Replacement repair parts

THERMAL ARC

5 Years Parts* / 3 Years Labor
ArcMaster, Excelarc, Fabricator, Fabstar, PowerMaster
Portafeed, Ultrafeed, Ultima 150, WC 100B
* 5 years on the Original Main Power Transformer and Inductors not mounted on PCBoards.
* 3 years on Power Supply Components

2 Years Parts and Labor Unless specified
Auto-Darkening Welding Helmet (electronic Lens), ** 1 Month Harness Assy
Victor Regulator for Fabricator 181i (No labor)

1 Years Parts and Labor Unless specified
95S, Water recirculators
All Plasma Welding consols (i.e WC-1 Controller, WT Timer, WF-100 Capstain Feeder, etc)

180 days parts and Labor Unless specified
Plasma Welding Torch and leads packages
Gas Regulators "Supplied with power sources" (No Labor)

90 days parts / No Labor
Remote Controls
MIG and TIG Torches (Supplied with power sources)
Replacement repair parts

30 days parts / No Labor
MIG Torch for Fabricator 181i

5-2-1 years Parts / No Labor
FirePower® Welders

Victor Technologies limited warranty shall not apply to:
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